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AMIGA FORMAT

ISSUE 13 ■ AUGUST 1990 ■ £2.95

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To movies, monsters, action and adventure from the big screen to the Amiga

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with the best in programming languages

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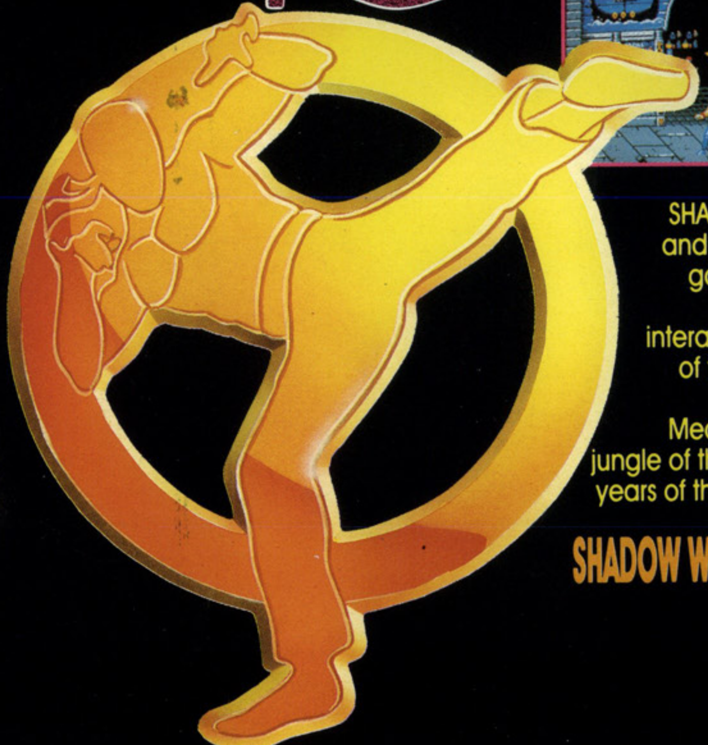
in amazement at all the new games

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SIGNS OF







SHADOW WARRIORS, the latest, greatest and most ambitious martial arts coin-op game now rages onto your computer

FEATURING

interactive scenic backdrops. The secrets of the Ninjitsu assassination techniques have been handed down since the Mediaeval wars..now they live on in the jungle of the American metropolis. A thousand years of the Ninjitsu secrets at your fingertips... Take your techniques to the streets

SHADOW WARRIOR...the hero of the nineties.



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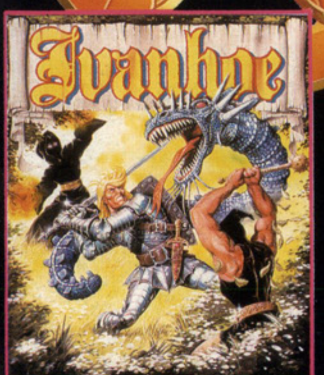
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Enter a mediaeval era in a mystical world where Ivanhoe, our chivalrous hero, pursues a perilous quest... a quest from which most mortals would flee ! Strap on your armour, take up your sword and brace yourself to face the magical powers of the most evil of wizards, the plunderous pirates, the most awesome of dragons and a host of hideous 'beings' in this land of legends. Superb animation, of cartoon quality and beautifully executed graphics create a visual impact unrivalled in the media of interactive entertainment.

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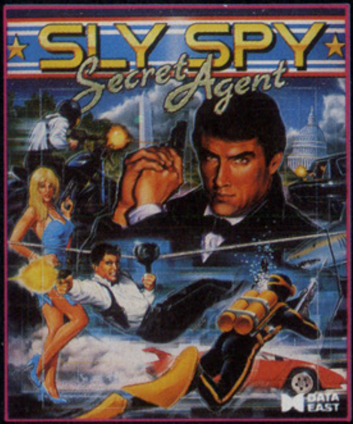




TIMES







The hit coin-op game bringing espionage and action with 9 levels of thrills and excitement. Innovative game features with a host of differing scenarios from high-powered sports cars to underwater guerilla warfare. Rescue a beleaguered nation from the oppressive regime of the 'Council for World Domination'.

ESPIONAGE EXTRAVAGANZA FEATURING 9 LEVELS OF HIGH ACTION!



XC

"Utterly mouth-watering graphics and an amazing depth of play ... the best flight simulation I have ever seen (and there's nothing on the visible horizon that looks set to come close). It's not a simulation, it's an experience ... Ocean's first flight sim is the best out!" Zzap 97%.









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AMOS – AT LAST! 75

Mandarin's Games-Creating Language



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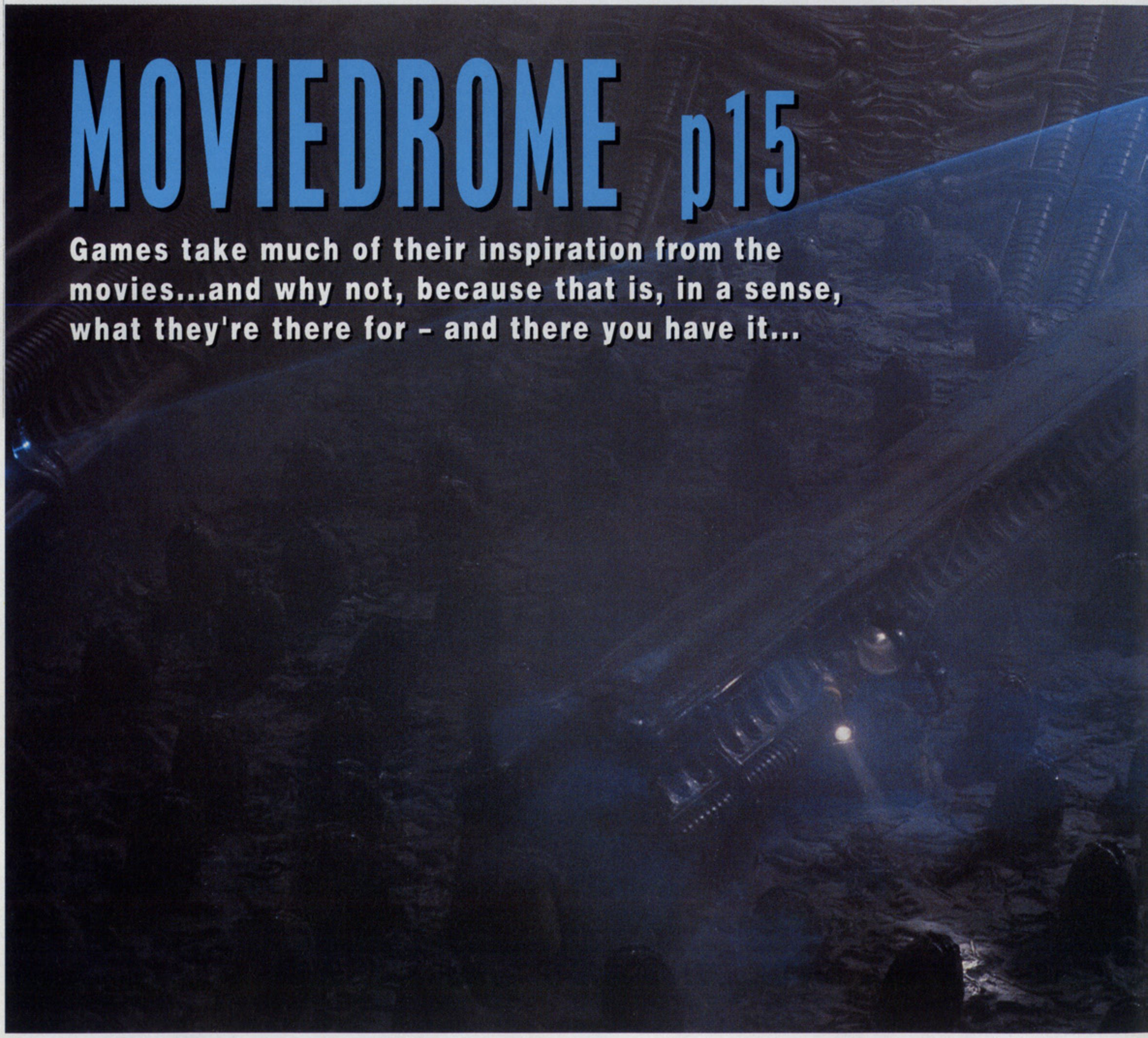
Special Effects – Surface Mapping



PROGRAMMING 109

A Complete Round-up of Languages

COVER ILLUSTRATION: ROY ELLSWORTH



MOVIEDROME p15

Games take much of their inspiration from the movies...and why not, because that is, in a sense, what they're there for – and there you have it...

AMIGA FORMAT 13 JULY 1990

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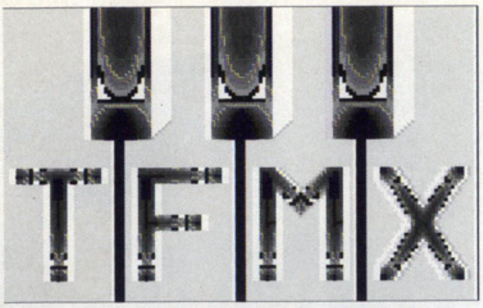
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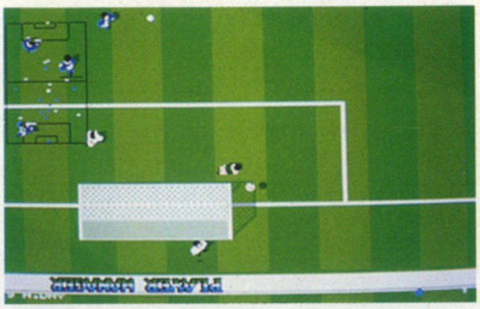
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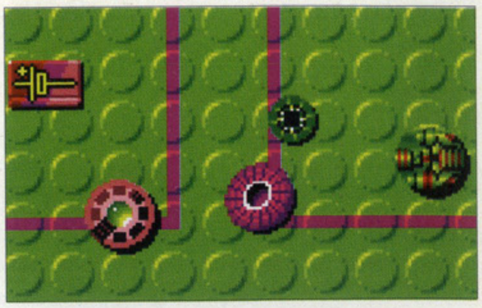
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See Page 143 for details!

ABC
Member of the Audit Bureau of Circulations
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Disk Extra 87

CADAVER
PLAYABLE DEMO OF BITMAPS' CASTLE CAPERS FROM IMAGEWORKS

FENSTER: Amazing screen handling ■ **POPUPMENU:** Makes menus much simpler ■ **ZAP:** Multitasking binary editor

MENACE
DAVE JONES COMPLETES HIS SERIES AND HERE'S THE SOURCE CODE

LHARCA: Friendly archiving facility ■ **COPPER TUTORIAL:** Graphics tricks to go with the programming feature

AMOS – The Creator is like nothing you've ever seen before on the Amiga. Developed by the author of the best-selling STOS, the number one game creation tool for the Atari ST, AMOS stretches the Amiga to its limits. Now for the very first time you can access the awesome power of your computer with bewildering ease.

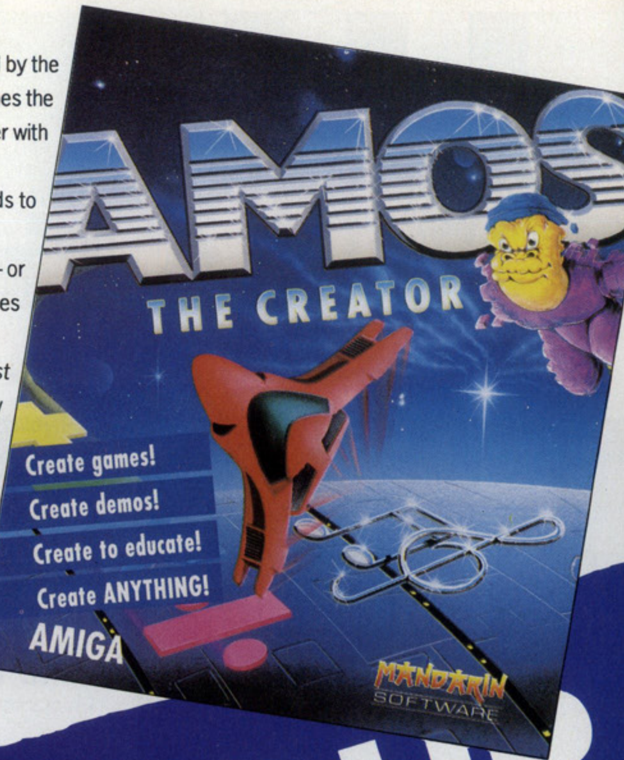
AMOS Basic is a sophisticated development language with more than 500 different commands to produce the results you want with the minimum of effort.

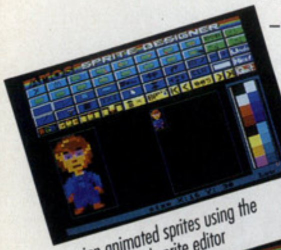
Whether you want to create arcade games, adventure games, demos, educational programs – or even serious applications like graphical databases or video titling sequences – AMOS will turn your dreams into reality.

It's no wonder that Amiga Format has described AMOS as *'the most eagerly awaited Amiga utility ever'*, and Amiga Computing said in its May 1990 four-page preview: *"Whoosh! By far the fastest Basic interpreter on the Amiga. Runs like the wind... Nobody will ever top it... Cheap at twice the price... Overall 94%.'*

Don't delay, send for your copy of AMOS today – and you'll also receive, absolutely free of charge, **AMOS Sprites 600** – a fabulous collection of more than 600 animated sprites for use in your games (not available separately).

We're so convinced about AMOS that we're even offering a money-back guarantee if you're not satisfied.

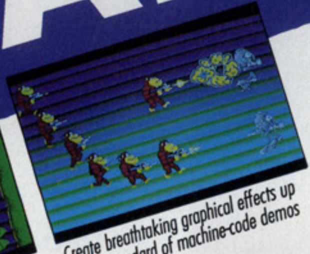



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Leap across the lillies to learn your times tables the fun way in Number Leap


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Play the addictive Magic Forest and see just what AMOS can do!

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WHAT YOU CAN DO:

- Define and animate hardware and software sprites with lightning speed
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- Scroll a screen with ease. Create multi-level parallax scrolling by overlapping different screens – perfect for scrolling shoot-'em-ups
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AMOS Basic, sprite editor, Magic Forest and Amosteroids arcade games, Castle Amos graphical adventure, Number Leap educational game, 300-page manual with more than 80 example programs on disc, sample tunes, sprite files, AMOS Club Newsletter and registration card.

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Please send me **AMOS – The Creator and my free copy of AMOS Sprites 600**

☐ I enclose a cheque payable to Mandarin Software for £49.99

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CDTV NEWS

Commodore present their vision of the future

WHEN IS AN AMIGA NOT AN AMIGA? WHEN IT'S A CDTV!

It looks like a video recorder or a CD player. It isn't either. If you take it apart, you'll find the circuit boards from an Amiga, but it's not an Amiga. So what is it?



One privileged show visitor gets to use the CDTV first hand.



Is this the home entertainment complex of the future – the CDTV. Commodore are hoping it's a world beater.

Rumours about Commodore's 'CD Amiga' have been flying around for months. Many people thought the machine would be an Amiga 500 linked up to a special CD-ROM drive, giving the machine a massive storage capacity and bringing it to the forefront of interactive technology: others believed that an Amiga-based games console would be given a CD drive, giving it a world-beating lead in interactive games and allowing devastating use of graphics and sound.

Speculations were ended at the Consumer Electronics Show in Chicago at the beginning of June, when Commodore surprised almost everyone by launching something that didn't look even remotely like a computer. This is the CDTV – 'Commodore Dynamic Total Vision' – a compact, oblong black box, owing more of its design to CD players and VCRs than it does to any computer.

Amiga Hardware

On the front of the CDTV are the words 'Interactive Graphics Player'. Inside the machine is all the hardware from an Amiga 500, plus a hi-fi quality CD player. The idea of the gadget is that it will connect up to hi-fi music and video systems and can play audio CDs as well as CD-Graphics discs (a format used recently by such artists as Lou Reed and Fleetwood Mac to release music-plus-video versions of their latest albums).

But more than this, the CDTV will play CD-based games and applications that take full advantage of the massive graphics and stereo sound capacity of the discs and of the machine. This is the world's first 'interactive multimedia player' which, according to Commodore, "represents a revolutionary advance in the development of interactive consumer electronics products and home entertainment".

Above all, it would seem that Commodore don't want anyone to think that this is a computer. It has no keyboard, no mouse and no floppy disk-drive, though all three of these are available as add-ons and can be used either as plug-in units, taking advantage of a full set of Amiga ports on the back of the machine, or as infra-red remote control units. All come with a smart black finish to match the machine.

If you do plug on these peripherals, you basically have an advanced Amiga 500 with CD-ROM drive, a Mbyte of chip RAM, improved video capacity and full MIDI. Good news indeed. But if you don't plug the bits in – and this is the key point – you need never know you were using a computer at all.

No UK price has been set for the CDTV, its peripherals or the disks yet, but expect the main unit to come in at somewhere between

FESTIVAL OF ANIMATION

The competition is underway to find the best Amiga animation of the year.



The third annual animation competition and exhibition run by the Amiga Centre Scotland as part of the Edinburgh Festival is underway. The competition is open to any Amiga user with an animation to show off, which can be submitted on disk or PAL video tape and should be sent to the Amiga Centre Scotland by 31st July.

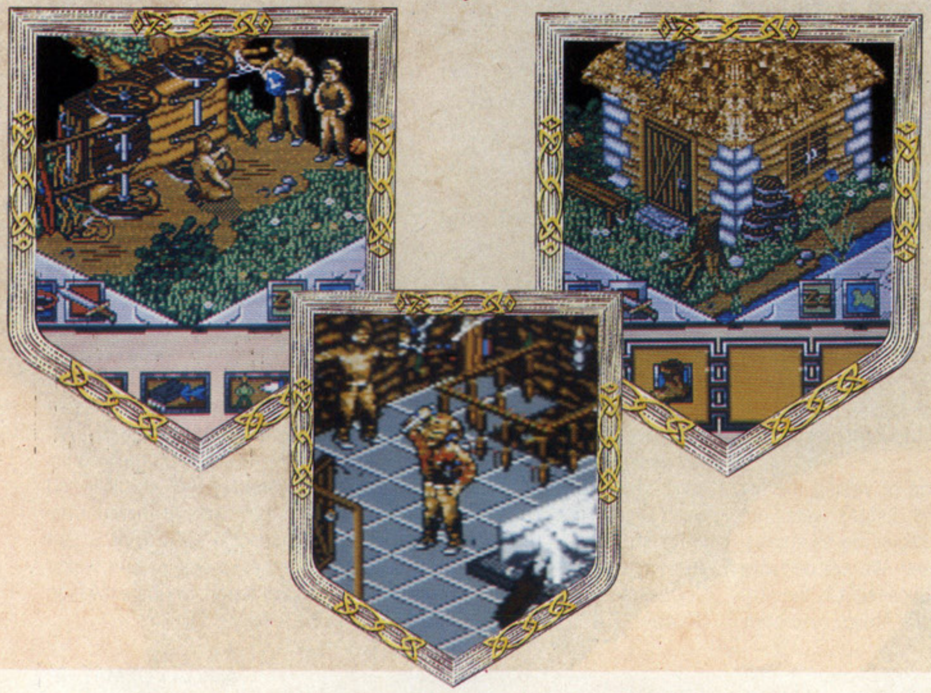
This prestigious event shows the Amiga off at its very best, previous years have produced very impressive animations indeed. Last years winner was a superb piece of political satire called "Maggie goes Green" by Mark Wirt which was featured in Amiga Format issue 4 along with the other winners. This wonderful animation was also the cover star of issue 5.

This isn't just a competition either – all the finalist's entries will be on display at an animation exhibition that runs at the ACS's offices during the Edinburgh Festival, from August 11th to 18th from 11am to 2pm (excluding Sunday).

At the time of writing the list of prizes and judges was not finalised, but should be as impressive as last year. We are certainly supporting it because it is the sort of event that the Amiga, and computers in general, need to raise their profile and give them credibility. The graphics and animation produced on the Amiga can be of tremendous quality and it's a legitimate art form that should get wider recognition and acceptance. Entry forms for the competition are available from: Animation Competition, Amiga Centre Scotland, 4 Hart Street Lane, Edinburgh EH1 3RN Tel: 031 557 4242 Fax: 031 557 3260. Alternatively turn to the inside back page of this issue (p178, where the guru clings grimly to his pitiful existence) and you will find an entry form with all the information you need to send to ACS. Get those entries rolling in and watch out for our report on the exhibition and the winners.

THE FINAL BATTLE™





IN THE BEGINNING THERE WAS A SWORD, THEN CAME THE ADVENTURE.

A wizard trapped in a teardrop. A magical sword. A race of mutant humanoids.

Their attempts to destroy the kingdom were thwarted by a band of fearless adventurers. In the chronicles of Anar that chapter became known as the Legend of the Sword.

Then the teardrop shattered and the wizard unleashed a plague of death and destruction upon the land. The world of Anar has one remaining hope: whoever recovers the six power crystals created when the sword was forged, may banish the wizard to the deepest pit of hell...

Final Battle, the sequel to the much-acclaimed Legend of the Sword, features a much larger vocabulary, an expanded inventory and superior graphics. Its highly sophisticated action system allows for weather changes and gives a 3D view of every location – a system at the forefront of contemporary adventuring.

When the teardrop explodes, only the brave can save the land.

PSS

IRWIN HOUSE, 118 SOUTHWARK STREET, LONDON SE1 0SW. TELEPHONE: 071 928 1454. FAX: 071 583 3494

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Screenshots from Amiga version



The complete CDTV set up with its infra-red remote control joystick and mouse. What you are looking at is basically an Amiga with a CD-Rom drive attached. It looks slick in a black box though.

£750 and £1000. Its launch date is also unknown but it should be around in reasonable numbers well before Christmas.

What is a CDTV?

The CDTV is operated using an infra-red remote control very much like the one used with a TV or video, which distances it from the computer feel. Its major applications will no doubt prove to be in the mould of 'interactive video', so in many ways it is an advanced video recorder rather than the next step in home computing.

"The system will be used for reference works, special interest areas, surrogate travel, music, entertainment – and once we abandon the high ground it will play one hell of a game!" said Nolan Bushnell of Commodore's Interactive Consumer Products division. The logical conclusions of CD technology in gaming have been contemplated for a while by many companies: Cinemaware are a good example, having spent some time gearing up to produce games that are more like interactive movies. But the other possibilities for interactive educational software and the like are as yet only slightly explored.

Reactions to the new machine have been mixed. Many still thought they'd seen a CD Amiga, others something that could prove to be the future of multimedia and mean the death of the home computer.

At first glance it may not seem so, but peer inside the smart black casing and you might change your mind. The hardware that drives the CDTV is exactly the same stuff you will find inside an Amiga, complete with the PAD custom chips and a full 1Megabyte of chip RAM. It boots up from a Kickstart 1.3 ROM, it has a 4096-colour palette, a Centronics parallel port, RS-232 serial port, even an Amiga edge connector. To all intents and purposes this is an Amiga. So why not call it one?

For once, you don't have to look behind the surface to find the reasons. This machine does not look like a computer – and that's because it isn't a computer. This is the Commodore Dynamic Total Vision, the world's first multimedia player, and it might just change the face of computing.

"This will change forever the way we communicate, learn and entertain – all at an affordable price."
Irving Gould





"The system will be used for reference works, special interest areas, surrogate travel, music, entertainment – and once we abandon the high ground it will play one hell of a game!"
Nolan Bushnell

What happens next?

Reactions to CDTV at CES in Chicago varied between two extremes. Many were still not convinced that this was any more than a CD Amiga. Others were inspired by the prophetic tones of the official Commodore line.

Irving Gould, Commodore's chairman and chief executive officer, said of the CDTV that "this will change forever the way we communicate, learn and entertain – all at an affordable price." The theme of a lifestyle revolution was shared by Nolan Bushnell when referring to Commodore's strides in multimedia, "books were really great in their day – but books right now don't cut it. They're obsolete."

Commodore's bullish attitude is unsurprising because of the immense opportunity and risk that the CDTV represents. If it succeeds, as it deserves to, it will indeed change peoples lives even more dramatically than did the VCR or television.

However, it faces stiff competition from the rival CDI system being developed by several Japanese electronics giants and if it loses the battle in the marketplace it could find the CDTV in a similar position to that of Betamax in the VCR system standard war.

Commodore are clearly aware of the dangers, highlighted by Gould's comment on the licensing of the CDTV system to others, "we've an even money chance of being a de facto standard, so we're under a moral obligation to licence." Which basically indicates that if they can get enough people to put their resources and faith into CDTV, then any rival coming along with a different system will get shut out.

One group already benefitting from the CDTV's launch are 120 Derbyshire schools. They are being supplied with CDTVs by Commodore to teach Japanese. A curious choice until you realise that Derbyshire council have struck a lucrative deal with Toyota to build a car assembly plant there. The systems should be launched there in September, and although initially aimed at teaching Japanese, the possibilities for the CDTV in education are immense and Commodore are clearly keen to pursue them.

As soon as we get our hands on this revolutionary machines we'll review it. Watch this space.

BRIDGING THE AGE GAP

LCL are expanding their range of educational software to cover all ages. The latest addition, Mega Maths, takes that subject up to A-level and is a companion to Micro Maths which covered it up to GCSE level.

As with all LCL's software Mega Maths consists of 24 programs and 2 books for £24. The new programs include such diverse material as straight line geometry, applications of the remainder theorem, advanced integration and applications of integral calculus – in all there are 105 topics covered.



LCL's new A-level maths software and that must be a student holding it.

LCL is also to release software to cover 3-12 year-olds, called Primary Maths Course. This too will consist of 24 programs and 2 books compatible with the National Curriculum. Its addition means that LCL now have programs to take you all the way through from the age of three to taking A-levels.

As well as the maths courses LCL also do Micro French and Micro English to take the student through from age 8 to GCSE level. They too are £24 for 24 programs and 2 books.

For more information on any of LCL's software you can contact them on 0491 579345 or write to them at Thames House, 73 Blandy Rd, Henley-on-Thames, Oxfordshire RG9 1QB.

UNIVERSAL TRANSLATION

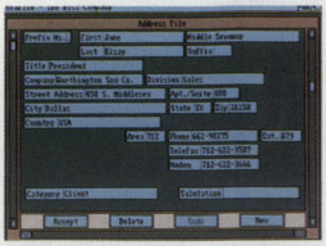
Getting data from one make of computer to another has always been a problem, requiring different comms software, special cables for each machine or lots of painstaking retyping – a very frustrating business. Now Music Suite think they have come up with the answer for Amiga owners, the Printercept.

The idea behind the Printercept is that it makes the Amiga look like a printer to another computer, which then dumps files to it, complete with formatting commands like underline and bold. It will also convert the file for use in various word processing formats like Protext and Scribble. It will even convert picture files to IFF.

The software comes with a cable that connects to the Amiga's parallel port and plugs into the other computer's printer port. The software can also accept serial communications.

Music Suite already have experience of this sort of data transmission through their software for linking the Z88 portable to the Amiga. The Printercept costs £34.95 from the Music Suite on 0239 711032 (credit card hotline available on 0239 710594) or at Glanyrafon House, Cenarth, Newcastle Emlyn, Dyfed SA38 9JN.

FILE THOSE FACTS



InfoFile, the brand new database from The Disc Company.

Paris based The Disc Company, are releasing a brand new database called InfoFile, at the terribly friendly price of £24.95. The database comes with 10 ready made templates, including an address file, home video library, chequebook records, membership manager and expense report.

Amongst InfoFile's features is a desktop presentation tool that allows the creation of a sound and graphics slide show from a database. It also has the ability to define calculations in a similar way to a spreadsheet. It's compatible with files from FusionPaint, DeluxePaint, DigiPaint, Future Sound and Pro Sound Designer or any IFF compatible graphic or sound program.

The program is available from The Disc Company's UK suppliers – Centresoft, Leisuresoft, Gem, HB Marketing and Multi-Media, or you can phone their Paris office for more info on 010 33 1 49 10 99 95

TIMECODE EDITING

If more proof were needed that the Amiga is a heavyweight in video work then check out KRP Video Services new timecode editing system. It consists of 2 modified Panasonic FS 100 S-VHS VCRs, an A500, a Rendale Super 8802 S-VHS genlock and a timecode box with software – impressive, isn't it? So is the price at £5,999 – but that compares very well with similar systems and includes installation and a days training.

Apparently this impressive list of hardware allows you to take previously recorded or new camera footage and timecode it. Decisions about edit in and out points are made on a visibly coded copy, so you can perfect the edit without risking your original tape. If this sound like the sort of gear your video work needs then contact KRP Video Services on 041 762 2510 or at Buchley Lodge, Balmuildy Road, Bishopbriggs, Glasgow G64 3QQ.

The timecode editing system from KRP Video Services



NUMBER TROUBLE

Anyone trying to contact Tofware International on the fax number they printed on their advertisement in the July issue, won't have had much success because it's incorrect. The number should be 0733 371703.

AMIGA IN BOOTS

Excellent news for the Amiga from retail chain Boots – they are returning to the computer hardware market in September with the Amiga 500. They already stock software but the Amiga 500 will be the only computer they sell in over 150 Boots Sound and Vision departments. Another indication, if any were needed, that the Amiga is still a very long way ahead of the competition. It's getting to be a case of where can't you buy an Amiga these days?

SOUNDS ALTERNATIVE

New Dimensions are adding a new dimension to music making with their TechnoSound sampler. It consists of a module that plugs into the printer port, software, manual and an audio tutorial tape. The software features true quality stereo and simulated stereo (for memory saving) and sampling can be done for any frequency using a music scale indicator. Effects available include echo, hall, room and phaser, and when you get to editing and mixing there's continuous looping on hand.

Initially TechnoSound is only available mail order, so for more information contact New Dimensions on 0291 690933 or at Brooklands House, Bryngwyn, Raglan, Gwent NP5 2AA.

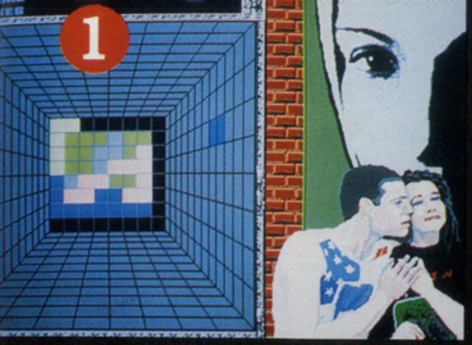
I KNOW IT, I KNOW IT

Sporting trivia fans should keep their eyes peeled for a couple of triv games on the way from Amfas Computer Software. First up is Everton FC Intelligentsia, a football triv game that isn't just about Everton, but footie in general. It costs £19.99 and the highest cup winning score on the game by 31st December wins £200.

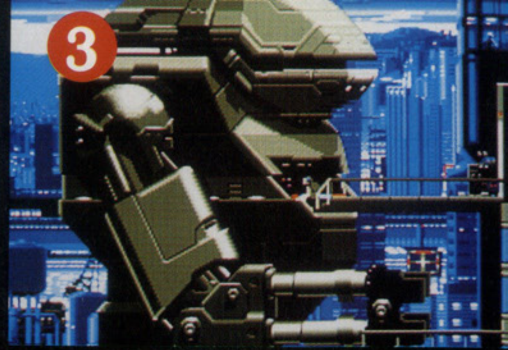
Coming in the Autumn is Ian Botham's Sports Quiz which covers everything from football to tiddlywinks in its 1700 question quest for sporting trivia. This too will have a high score competition to win £150 and an autographed cricket bat from Ian Botham himself. Now who was the world tiddlywink champion in 1938?

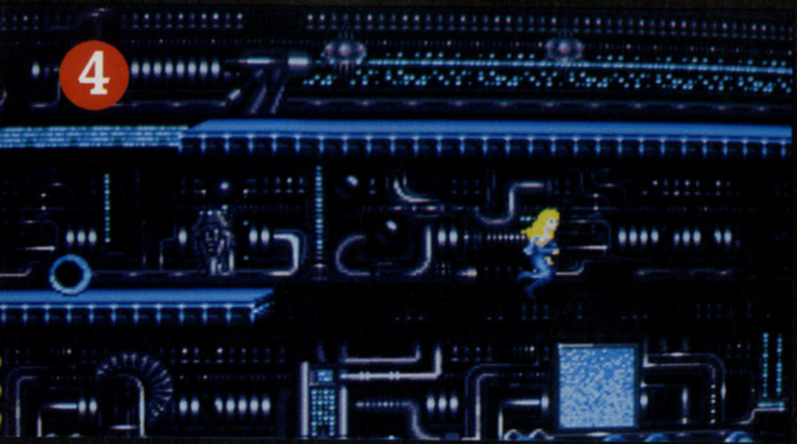


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COMING ATTRACTIONS

Summer at last, and a heap-and-a-half of new releases storms onto your screens soon!

1 Welltris

Alexey Pajitov may not be as famous or have as much of a pop star image as, say, the Bitmaps: but he's written one game to rival anything they've produced – the phenomenal *Tetris*. Alexey's been hard at work over the last few months on the sequel, due out shortly from **Infogrames**.

As in *Tetris*, the object is to manipulate shapes and get them to lock together. *Welltris* almost literally adds a new dimension, however, in that the pieces are falling down a well which you view from above. Lines of fitted shapes can now be made vertically and horizontally. Eggheads and frustration players, this is what you've been waiting for.

2 Murder in Space

Amateur detectives out there will soon be able to excercise their skills in this one from **Infogrames**, which sends you to the year 2005 on board an orbiting space station to save the lives of eight crew members.

3 Metal Masters

If you'd rather be at the controls of a skyscraper-sized robot, then there's always **Infogrames'** *Metal Masters*. This is an arcade game where you first have to buy and assemble your 'bot before entering it into either a combat arena or a sports track to take on other robots. This hi-tech mayhem is due around September time, so look out for it.

4 Final Countdown

As a beautiful female spaceship commander (with a propensity for wearing bizarre jumpsuits and only one stocking) it's your job in this arcade adventure to penetrate the hull of a large spacecraft disguised as an asteroid on a collision course with Earth.

This **Demonware** game has a huge game area and a real *Impossible Mission* feel about it as you troll around the ship hacking into its computers and solving puzzles as you go. *Final Countdown* should be around even as you read this.

5 Oops Up!

Demonware have also been beavering away on a wacky mix of platform, puzzle and shoot-em-up called *Oops Up!* The scenario (apparently) has you buzzing round the galaxy trying to procure parts of a large spaceship. *Oops Up!* promises to be one of those very simple but very addictive games. You'll be able to find out very soon.

6 Hagar the Horrible

Coming from **Kingsoft** through the very same publishers is the conversion (from the cartoons) of that loveable rogue Hagar the Horrible. Details of the game are sketchy at the moment, but it's believed the game will be some sort of humorous arcade adventure. More details as soon as they come in, but in the meantime here's a picture to keep you going.

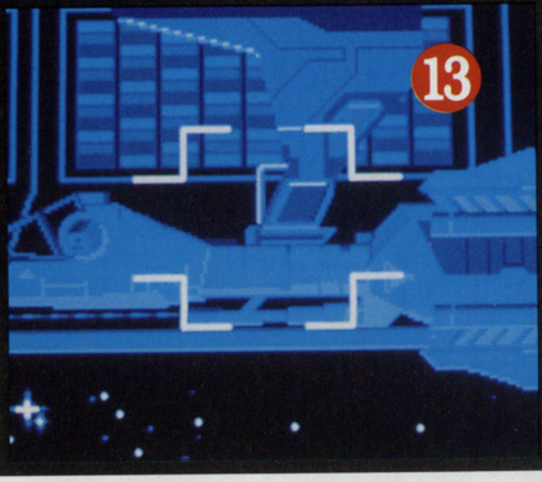














7 Time Machine

The team behind the great game *Hammerfist*, Vivid Image, have been working on another game to come out on the **Activision** label. *Time Machine* is billed as a 4D fantasy role-playing arcade adventure. There are puzzles to solve as the player takes on the persona of Prof Potts, who must manipulate history and create the future by interfering with evolution. August should see the release of this 'deeper than your average' game.

8 Yolanda

Millennium will shortly be following up the superb *Resolution 101* with a new Steve Bak game. It's a platform game, with the player becoming the daughter of Hercules and having to undergo the famous Twelve Tasks in order to lift a curse from her father. This is a re-working of a C64 game (imaginatively called *Hercules*) and features some 50 levels with a special beginners' training level.

9 The Gold Of The Aztecs

That's the prize for any brave adventurer who can work his way through 80 screens of puzzles and traps which will test not only your mind, but your joystick reactions as well. There promises to be a surprise round every corner in the jungle world of this latest **US Gold** game!

10 Snow Strike

For those who fancy their fun a bit further off the ground, **US Gold** are also gearing up to release a combat flight sim called *Snow Strike*. In the game you'll be flying specially converted F14s on 10 top-secret missions to destroy drug barons.

11 The Spy Who Loved Me

Bond makes another appearance on the small screen in an escapade based on one of his earlier films. The game is due in September and promises to be an action-packed thriller which follows the plot of the film closely. As Bond your mission will be to liaise with the beautiful Soviet agent Anya Amasova... pay attention, 007!... and put a stop to the evil genius Stromberg who's captured a couple of nuclear submarines and is threatening to take over the world.

12 Neuromancer

Electronic Arts have decided it's high time us Amiga-owning Science Fiction fans should have *Neuromancer* to play with. The game's a role-playing affair based on the best-selling book by William Gibson, king of Cyberpunk (*Cyberpunk n. adj. genre of writing involving humans at conflict with a decaying high-technology society)*. The game's set in 21st Century Japan and the player plays the part of a hacker out to survive on the tough streets of the future world.

13 Magic Fly

Also set in the future is **Electronic Arts'** *Magic Fly*, a vast search and destroy game which sees the player piloting the ultimate confined-space fighter in a bid to bring a bunch of future crims to their knees. Get ready for plenty of blasting action as you battle against over 30 different alien craft all beautifully rendered in yer 3D solid vector graphics (whatever they are...)

14 UMS II

After much umming and aaahing it seems the follow-up to one of the best 16-bit wargames ever to appear is almost ready to be unleashed on a world of megalomaniacs.

UMS II is a global strategic warfare simulator (as opposed to the tactical simulator *UMS*). The player will have armies from all time periods to fight with, across the whole world – a world the player can design, alter and play about with as much as is wanted.

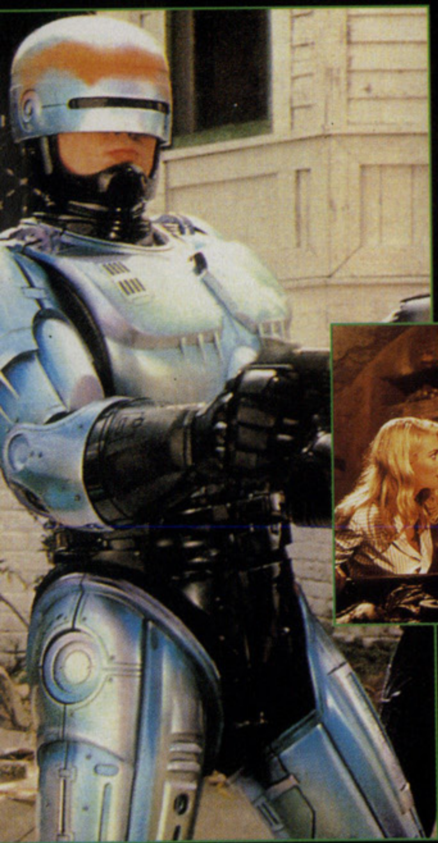
UMS II will feature so many options and choices we simply don't have the space to even start to go into them, so watch for the definitive review in next month's action-packed *Amiga Format*.



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Moviedrome











Films and television have long exerted an influence on computer games. GORDON HOUGHTON attempts to divine the reasons...

If you thought that the cinema was the only place you could rustle up enough blood to satisfy Dracula, or that TV was the natural home of quiz and puzzle games, then think again! The chances are that the classics of the silver screen and the inimitable gems spawned by television have already influenced games on your Amiga.

There's a constant, unacknowledged flow of information and ideas that filters down from the cinema to the programmer; whether it's the visual impact of an individual scene or the basis for a whole game scenario. It's a source of inspiration that never runs dry – games borrow concepts and images from the same films time and time again.

> “Implant a subconscious set of film references into a game and it gains a mystical quality which gives it the edge”

Science fiction and fantasy tales are natural targets because of the computer industry's emphasis on a synthetic world – whether it's set in an escapist 'alternative' present (like simulators), an invented past (like many arcade adventures), a mythical environment (like most role-playing games) or a distant galaxy (like most shoot-em-ups).

If a world is synthetic and original, it has no common background to which people can refer, and so the audience isn't likely to respond as well as it would to something it shares. So implant a subconscious set of film references into a game and it gains a mystical quality which gives it the edge over its opponents.



Stealing the Scene

Some programmers make direct and 'honest' conversions containing snippets of the original film plots and a sprinkling of licensed character names, their work benefitting from the association – *Star Wars* would be a pretty mediocre vector graphics shoot-em-up without the aura of the film behind it. Most games, however, rely on a shared set of experiences with the public to give them a kick in the right direction.

From shoot-em-ups to adventure games, there's a high chance you'll find a sneaky film influence lurking in there somewhere. It could be a Giger-esque visual display, a sampled sound effect, or a familiar storyline. It could be one character who you might recognise from a cartoon or an episode of *Star Trek*, or a name drawn from some obscure 50s B-movie. Whatever source it dribbles from, programmers lap up inspiration without a second thought.

The obvious case is the direct licence, where a software publisher buys the rights to convert film scenes into computer action sequences. Whether it's fleeing from a rolling boulder, biffing drug barons on the tops of oil tankers or busting ghosts that happen to step out of line, computer games grab the vital scenes and try to recreate them as an interactive experience.

Sometimes this leads to disaster: direct film influences used to be dead certs for 'Turkey of the Year' awards, and even now the odd gobbler shuffles its three-toed way onto our monitors. Nowadays, though, games licensed from cinema extravaganzas are just as likely to be a triumph – look at the success of *RoboCop*.

The Real Thing

If you've bought a licence, you're allowed to cross-translate its thematic ideas and visual images unashamedly – as a result these ideas and images tend to centre on extremes of violence or conflict. Trying to emulate long philosophical discussions is a good tonic for insomniacs.

Last year, in particular, saw the transformation of dramatic scenes from box office blockbusters (*Licence to Kill, Batman, Ghostbusters 2* and *Indy III*) into eponymous games. And what did they all have in common? Action directly taken from the film.

Licence to Kill featured some macho oil tanker sequence, *Batman* emulated its inspiration's dramatic car chase scenes, *Ghostbusters 2* featured the 'busters putting the willies up spooks inside the Art Gallery, and the *Indy III* Adventure game followed the film's plot almost to the letter.

Making money from games based on cinema licences often involves a crisis of confidence, since the processes of developing a game and finishing off the film are becoming more and more coincidental. Game production walks hand-in-hand with the making of the film – but if one of the hands in question is covered in something runny and smelly, no one benefits.

More Subtlety

Direct film conversions form only a small slice of the influence pie: programmers get their teeth round subtler forms of inspiration. Films often have an indirect and unaccountable influence – it's a way of getting some of the effect of a big name licence without forking out the moolah.

Anyone who's played *Rick Dangerous*, while realising that it capitalises on the atmosphere of forties screen and serial heroes, also recognises that the rolling boulder at the start of the game bears strong similarities to *Indy I*'s rolling stone. *Tusker* treads a similarly sticky path – his cool bush outfit, nifty hat and daredevil escapades in uncharted territories would make him a fair bet in an Indy lookalike competition. No one minds, since imitation really is the sincerest form of flattery.

And what about storylines? Games programmers stuck for a plot have often plundered popular media for 'inspiration'. Shoot-em-ups eagerly guzzle and regurgitate 50s 'Them and Us' sci-fi scenarios. How many times have you read a tale which runs something like 'the five-headed Splarg monster from the planet Xiuuuhrr is threatening sensible life as we know it? Only you (on your own as usual) have the adequately inflated gonads and correctly proportioned joystick to save civilisation.'

Probably one reason why no one's bothered with a licence of the *War of the Worlds* is that the Martian invaders died out of their own accord – it wouldn't make much of a game if all you had to do was sit back and watch as some invisible bacteria did all the dirty work.

Xenophobia

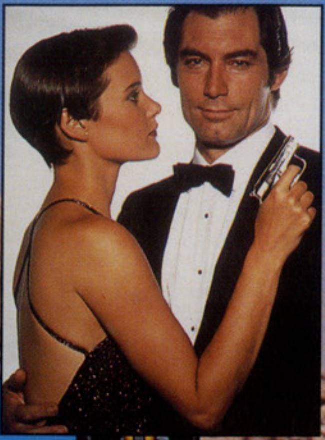
The fear of invasion or the promise of rebellion dominates blasters as much as it infiltrates SF plots from *Flash Gordon* to *The Return of the Jedi*. This kind of thematic influence is the next stage down from a direct licence: it often can't be quantified because you can't draw an accurate line between a game which follows a trend or one which transposes a plot. Even so, you know that shoot-em-ups have smart bombs, and you know that the *Death Blossom* in *The Last Starfighter* is a smart bomb, too.

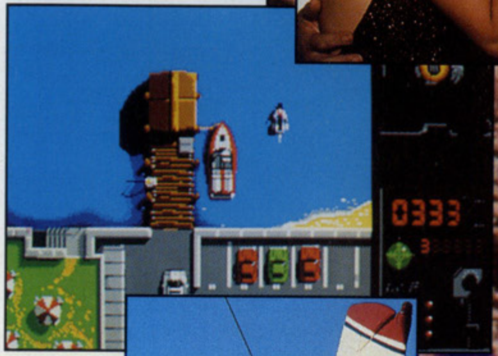
When the parallel is obvious, the games tend to benefit from the comparison. Having the *Tron* light cycles sequence in the back of your mind when playing Pandora's *Tron 5000* doesn't do the latter any harm.

In fact, Pandora seem to occasionally indulge in paying unidentified homage to screen classics: their *Eagle's Nest* evokes images of Clint Eastwood complete with designer three-day stubble biffing Nazis in *Where Eagles Dare*.

But does anyone really care? It's a lot better having your enjoyment of a game increased by its association to other media than being poked in the eye with a pointed stick. *Interphase* and *Neuromancer* would both be good games without their respective 'cyberpunk' influences – but they might never have come about without it, and they certainly wouldn't have the same impact.

The name's Bond. James Bond. He may be shaken by some of his encounters with SMERSH and he is occasionally stirred by even closer encounters with long-legged women, but he never seems to lose his cool when it comes to the computer screen. The latest Bond movie to hit the Amiga is the somewhat dated *The Spy Who Loved Me*.







"The five-headed Splarg monster from the planet Xiuuuhrr is threatening sensible life as we know it. Only you, on your own as usual, have the adequately inflated gonads and correctly proportioned joystick to save civilisation"



Graphic Experience

Visual influence is often the most striking area of casual imitation, particularly when the game is being subtly compared to a cult movie. Look at *Speedball*'s introductory screen, featuring a player tapping a metallic glove against his thigh – it directly echoes a similar scene in *Rollerball.* This means that the whole context of *Rollerball,* with its strong emphasis on violence, skill and lack of rules, is quietly transferred to *Speedball,* arguably giving it more impact as a game than it would have had if it was truly original.

Other games mirror cinematic images in this way. Accolade's *Gunboat* steaming up a Vietnam river resembles a similar scene in *Apocalypse Now*; the skeletons in *Myth* owe a good deal to the famous animator Ray Harryhausen and *Jason and the Argonauts*; *Weird Dreams*' surreal sense of humour and crazy animation could come straight from a *Tom and Jerry* cartoon.

With some games the link isn't so obvious. Take *The Sentinel,* for example: a mysterious entity, conqueror of 10,000 worlds, monolithic – you could easily draw parallels between that and the monolith in *2001: A Space Odyssey*. The link is particularly strong when you realise that the film itself was based on a book by Arthur C. Clarke called – you guessed it – *The Sentinel.*

Musical Link

Cinematic scores are different, in that they don't often leap the barrier into Game City. This makes computer music mostly unique – wibbling ditties to match cute games, powerful scores for serious space epics – but even here you can find the mark of the movies. When you're docked in the space station at the beginning of *Elite,* for example, you can hear the faint strains of The Blue Danube. The most famous cinematic example using the same score was *2001* (again), in the context of a spacecraft approaching a space station. Sound effects are similarly little copied, but they're fast catching up. Some games rely almost entirely on their special effects, whether they are visual or aural – and there's no better way of subconsciously evoking a positive response than by utilising already established ideas.

> “Computer music is mostly unique – wibbling ditties to match cute games, powerful scores for serious space epics”

As John Hurt explored the pod chamber in *Alien* the action was shown from a first-person viewpoint from within his helmet, the sound effects consisting almost entirely of a kind of hollow, metallic breathing. The brilliant sound effects in *Infestation* echo this: the most striking impressions come in the moments when your helmet is down – a first-person viewpoint accompanied by a hollow, metallic breathing.

Alien Invasion

Alien is one of the most successful science fiction movies of all time, and one of the most highly prized sources for programmers. The crew of a

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Most of the games which have snatched snippets from *Alien* have done so visually. The eggs in *Infestation* bear more than a passing resemblance to *Alien's* pods; and the between-level vector graphics routine in Dan Dare III has overtones of the film's own landing sequence.

Add to this a whole collection of Giger-influenced graphics knocking about in games such as *Project Firestart, Purple Saturn Day* and *Captain Blood,* and you have a film which has done the inspiration rounds more than any other. With an *Aliens* coin-op just released, isn't it about time someone did a direct conversion to 16-bit computers?

To B Or Not To B

B-movies are part of a tradition stretching back to the '30s and '40s: Hollywood churned out thousands of quick and cheap supports to the main feature – most of them knockabout westerns. In the age of the Atom Bomb and a new scientific awareness, science fiction and the concept of progress out of control was a natural successor – and it's this era that provides the most rewarding stream of inspiration tapped by many contemporary games designers.

Lucasfilm's *Maniac Mansion* and *Zak McKracken* owe a lot to 50s ham acting and tongue-in-cheek horror schlock movies; *Lurking Horror* epitomised the perfect high school melodrama; and what's *Space Quest* but a classic swashbuckler movie dressed in futuristic clothes?

Cinemaware seem to be making a habit of resurrecting B-movie and serial themes, images and sounds: *It Came From The Desert* (loosely based around the black-and-white creature feature, *Them!*) is just the latest in a long list which also incorporates *Rocket Ranger* (loosely associated with *King of the Rocket Men*), and *Sinbad*.

The number of cheap movie themes which would make silly game designs is practically endless: could the next game on Cinemaware's list be a faithful recreation of *Night of The Lepus*, a film which highlighted the perils of mutant rabbits terrorising innocent farmers? Let's hope so. No-one in these ecologically sensitive times has much bothered with killer animals, despite their popularity in cinematic history – which is probably why no one even thinks about converting tacky classics like *Swarm* (allowing you to play Michael Caine as he gains revenge on those killer bees) or *The Birds* (allowing you to play one of the killer birds as it gets its own back on Tippi Hedren).

Horror Scope

Horror films are currently undergoing a long-anticipated revival, having completed the transition from the mild Victorian-style ghost stories of the '50s and '60s into the modern day domain of personal body space plots and utterly convincing special effects.

Today's modern shock movie examines intimate issues – John Carpenter studies bodily invasion in *The Thing,* David Cronenberg addresses some pretty repulsive skin problems in *The Fly*. Horror software is a bit more conservative and tends to shy away from the new-fangled modernist approach: it prefers to nestle quietly somewhere between mythical fantasy and tame, old-style themes of vampires, evil robots and mysterious castles.

Take a look at *Ghosts and Goblins* or its successor, *Ghouls 'n' Ghosts;* lots of big enemies and weird landscapes but not much scare factor. *Space Invaders* was about as frightening and exciting as a season ticket to Rochdale United. *Shadow of the Beast* looked wonderful but didn't have anyone changing their trousers.

However, some games have managed to capture small-screen drama in a similar way to their big-screen counterparts: take *Dungeon Master,* for example. If you've been woken up by a gang of screaming mummies or you stumbled upon the dragon for the first time, you know what it feels like to have to peel yourself off the ceiling. It worked so well partly because the graphics (you could never see more than two blocks ahead) and the sound effects (minimal but very effective) combined to create a very tense atmosphere. FTL didn't go in for sonic and visual overkill – they knew how to make use of silence and suspense.

The future of horror software looks bright – it's a largely unexploited area with real potential for a new style of game. As it is, there are plenty of good cheap thrills being promised – two games to watch out for in particular are *Elvira,* (if it ever appears, because rumours abound that Tynesoft are no more) and Ocean's *Nightbreed,* a game with a higher mutation factor than a lifetime at Sellafield.

Small Screen Heroes

Alternative are currently mopping up just about every kids' TV licence





***Speedball,* Above, gains much of its fearsome atmosphere by a close association with the hard-hitting *Rollerball* film, Right.**

Enter the Dragon. Bruce Lee (Below) was the real originator of martial arts popularity in the west and his influence has lingered in games like *Budokan*.

The man with the hat (Bottom) has stamped his mark on some of the closest conversions ever. Is he now past it?

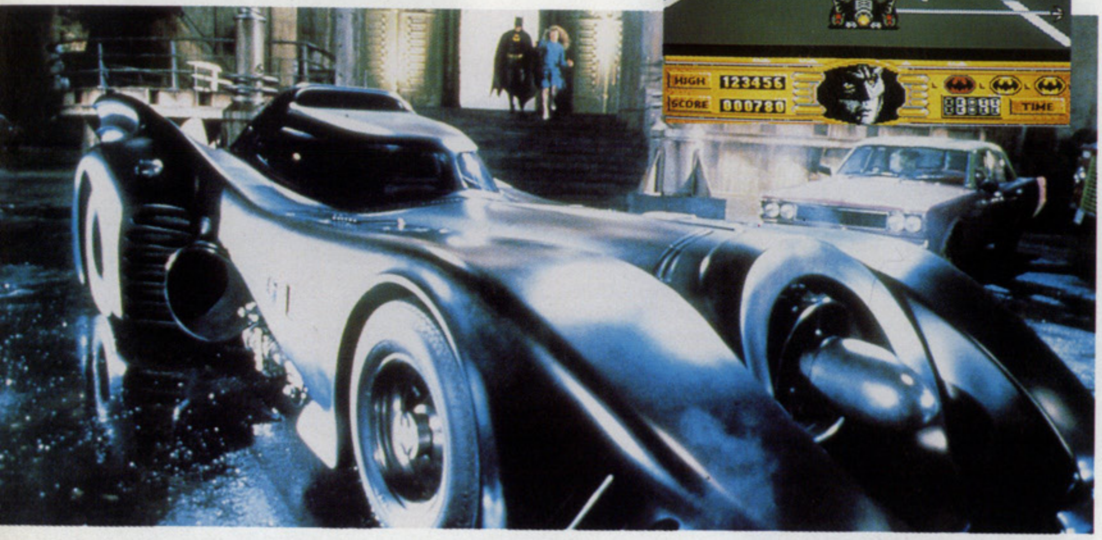
Photos: Kobal











going on 8-bit (although Grandslam got their paws on *Thunderbirds*), but television as a whole has a much more indirect influence on games, particularly cult series. The hairy carpets that pass for rock monsters in Episode 26 of *Star Trek* look suspiciously like the rock monsters in *Dungeon Master*, and there's an obvious link between *Impossible Mission* and *Mission Impossible*.

At least computers are getting their own back on TV: the latest compulsive Saturday night viewing is Steal, which features simplistic arcade-style games and is most worth watching to see how people react to that most mysterious of tools, the joystick.

Television stars may be already well established in games (David Coleman and Emlyn Hughes to name but two), but there's still a long way to go. No one's captured the quick wit and charisma of Roy Walker in code, nor has anyone realised the potential offered by *You Bet* (with its winning combination of Bruce Forsyth, ridiculous scrapes, memory feats, etc). Too expensive? Then how about converting those '70s series which encapsulated heroism (*Man From Atlantis*) or non-stop adventure and intrigue (*The Love Boat*)?

Batman (Above) was converted to a game that followed the film with extreme accuracy. Alien (Right) has, by contrast, had an indirect influence on space games such as Infestation (Below).

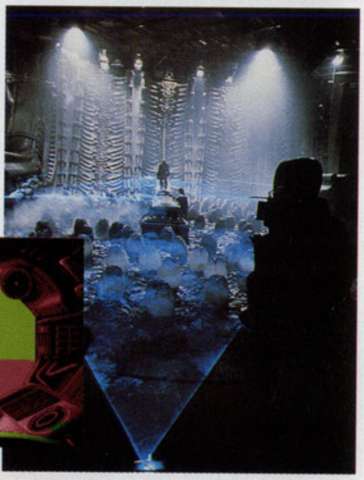


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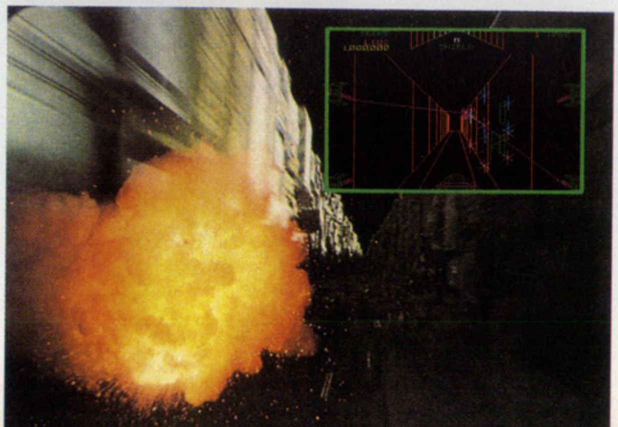


Photo: Kobal





Again, *The Sentinel* (Above) is subtly influenced by the monolithic image around which *2001* centred; but *Star Wars* (Below) has given rise to a whole troop of direct conversions.



Sock it to 'em

Chopsocky films and oriental fighting techniques were introduced to the west mainly by Bruce Lee, so they've only proved popular in the last two decades. The on-screen enigmatic efficiency of disciplines such as kung fu and taekwondo hasn't taken long to filter through into machine code, bringing with it a greater emphasis on fighting than on the philosophical postures of defence.

From the simple arcade style action of *IK+* to the complex and rewarding *Budokan*, credit is awarded as much for turning opponents into jelly as for nodding politely to them before a bout.

Monster munch

Monster movies aren't the most popular source of inspiration, but they do occasionally rise from the slime to expose their warty green heads and hairy bodies in computer games. There's plenty of dinosaur B-movie blood in Melbourne House's *Aaargh!* (but no Doug McClure, alas), and monsters make shy, fleeting appearances elsewhere.

Text adventures harbour insidious reptiles and eldritch beasts, a Godzilla-style lizard appears in *SimCity*, and (the monsters' finest hour), the werewolf in *Altered Beast* bears a striking resemblance to Oliver Reed in *Curse of the Werewolf*.

And what about *Rampage*, which was promoted by giving away free Chewits sweets because of the high television profile of a particular rampaging lizard? Tastier than Barrow-in-Furness bus depot...

Pumping Iron

Palace's *Barbarian* and its sequel are in a class of their own. Featuring chunky portions of rippling muscle, unscrupulous monsters and moustache-twiddling bad guys, they fondly imitate the exploits of Arnie Schwarzenegger in *Conan the Barbarian*. Gore, big swords and loose-fitting underpants – what more could you want from a game?

And for the Future?

Despite the currently widespread influence of films and TV shows on computer games, there's still great scope for novel translations from one medium to the other. No one has yet explored the method of drifting away from the spirit of an original idea – bringing out the beat-em-up aspects of *Bambi*, for example; or the high shoot-em-up quotient of *The Flumps*.

And there are plenty of ignored possibilities – how about a game based on the wacky happy-go-lucky scrapes indulged in by those loveable, cheeky *Double Deckers? The Elephant Man* is asking for a conversion because of the opportunities for sampled speech – who could hold back a tear when they heard the line "I am not an elephant, I am a man!" in the comfort of their own Amiga?

Maybe Cinemaware have plans to concentrate on games with strong emotional content, such as *The Sound of Music* – and surely it's only a matter of time before someone incorporates Richard Whiteley, quiz master extraordinaire, outrageously talented comic genius and literary giant, into their game design. ■

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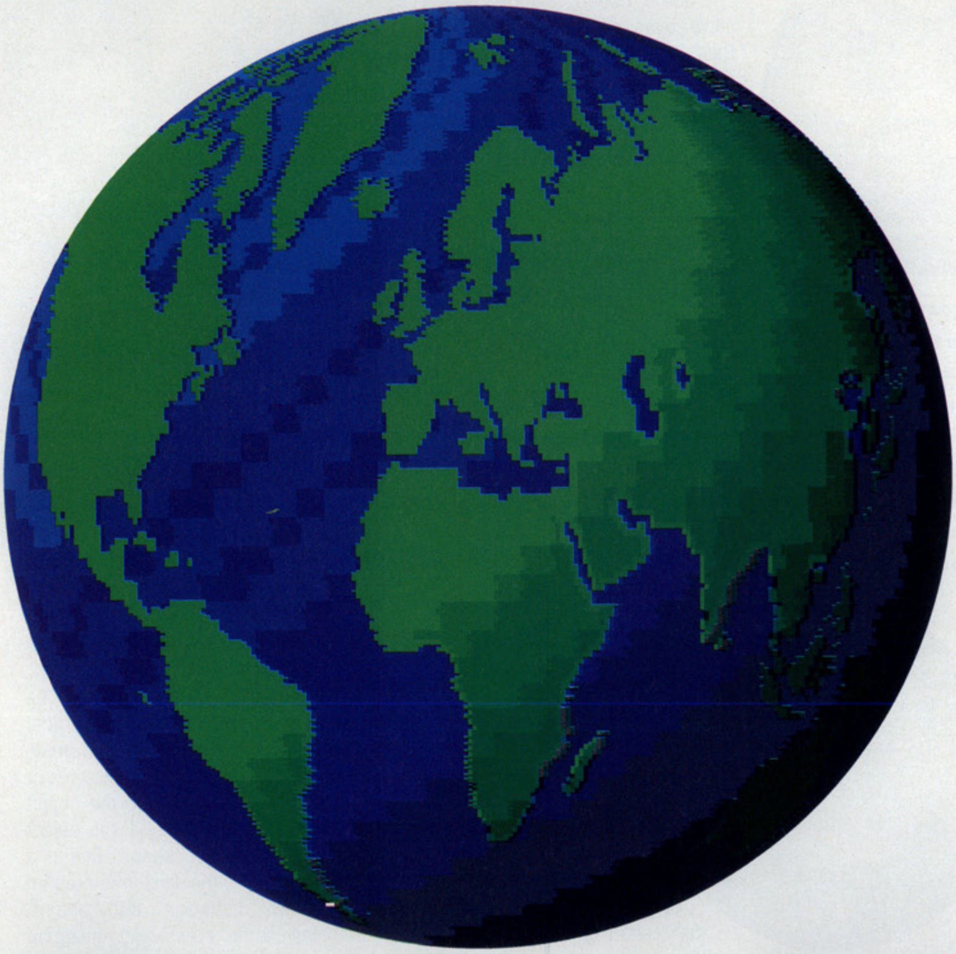
How often do you come across a juggling mono-cycle at the bus-stop or a marble leopard leaping across your garden? Never? Me neither, but thanks to computer graphics these and many other impossible realities are rapidly encroaching on the ordinary in our lives. Indeed, they are becoming ordinary themselves, at least within the pseudo-reality of the TV screen.

Over the next couple of issues, *Amiga Format* Graphics will be concentrating on the contribution that the Amiga is making to this weird, transformed reality. In particular we will be looking at the special effects capabilities of the Amiga – starting with 3D surface mapping.

As usual, the subject will be covered in our thorough way with details of all the techniques and where to find them, explanations of all the jargon and tips on how to get the best results.

Mapping THE World

In the first of a series on special effects in computer graphics, **BRIAN LARKMAN** concentrates on surface texture mapping.





Quite suprisingly, considering that our beloved computer is so completely suited to graphics techniques, only a few graphics packages offer any sort of surface mapping facilities. The reason is not very difficult to deduce – time. Almost any form of mapping technique takes an awful lot of computing power to complete, and some of the time-scales involved are almost geological.

Nevertheless, if a modelling package is to be taken seriously as a means of representing realistic objects and scenes it must be capable of displaying a variety of surface textures, even if you do have to be very patient to actually see them. The packages used in this article are *Photon Paint 2* (MicroIllusions), *SculptAnimate 4D Professional* (Byte By Byte), *Turbo Silver* (Impulse), and *Forms In Flight II* (Micro Magic). Other packages do give some choices of surface effects, but only these four provide any real control.

Why Surface Mapping?

As computer-generated images have become more commonplace, one of the main criticisms leveled at them has been their uniform, unnaturally plastic appearance – those smooth, shiny, snooker-ball surfaces.



This smooth surface is, of course, a product of the algorithms used to give angular, faceted objects a rounded look without using thousands of memory-hungry points and lines in the model. (See the *Sculpt-Animate* tutorial in *Amiga Format 5*.) These algorithms are relatively simple, idealised models of the world, whereas the real thing is much more complex, having texture and imperfections that would require millions of points and facets to render.

To overcome this surface perfection without increasing the complexity of the model a number of strategies have been evolved. Most of them involve mapping details onto the

actual donut itself, this should make things clearer. As always, such operations are considerably easier to do than to actually explain.

A New Blend

Another new feature is the colour blending operation. This is a little bit like the colour spread function to found within *DPaint*. Simply by creating two objects, one containing the start colour and one containing the end colour, *ProDraw* will create a spread of colours between the first and second objects. Used properly, this blend operation can create some breathtaking shading effects. For an example, check out the illustration on the previous page.

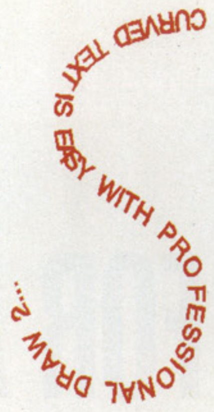
In true DTP style, the number of colours available for colour blending isn't restricted by the colours available from the computer. Using Postscript colour separation, you can define as many steps between one colour and another as you require. *ProDraw* displays these colours on-screen using dithering.

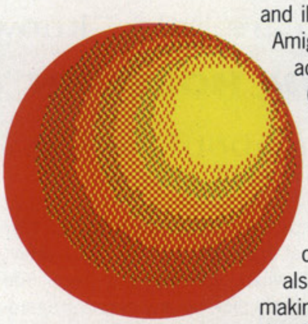
The blend function isn't just restricted to producing colour spreads. It can also be used to create transformations between two objects. For example, if you created two objects, one in the shape of a caterpillar, and one the shape of a butterfly, *Prodraw* is capable of creating a series of objects depicting the transformation between the first object and the second.

Text Control

Text within *ProDraw 2* is no different from any other object. Every letter of every word that you place on the screen is built up from smaller graphic objects. Each letter can therefore be edited in the same manner as any other object within *ProDraw 2* – you can resize, colour, distort and rotate letters, and even 'hook' any of the individual points that make up a letter.

ProDraw 2 uses the same Compugraphic outline fonts as used by Gold Disk's other DTP products, *Professional Draw* (Version 1.3) and *PageSetter 2*. Rumour has it that Commodore may build direct support for these outline fonts into a future release of the Amiga operating system, so obtaining additional fonts shouldn't be too much of a problem. The package comes complete with two outline fonts, Times and Triumvirate, but the company plan to release a whole series of Outline Fonts themselves which are available separately at a price of £139.95.





Once you've plonked your text onto the page the fun really starts. Using *ProDraw*'s powerful text distortion tool, it is possible to manipulate the text in ways that were previously thought impossible on an Amiga. Text can be sheared in either the X or Y axis, moved in 3 dimension perspective (just like in *DPaint*), twisted and distorted beyond belief.

ProDraw 2 also allows any string of text to follow a defined path. Simply by creating a path using the freehand pen tool, text can be made to follow a path of any shape or size across (or even around) the page, as shown on the left. *ProDraw 2* includes an extensive range of options to allow you to specify how this text curve alignment should take place.

Output Options

Although *ProDraw 2* was designed to complement Gold Disk's own DTP system, *Professional Page*, it can also be used with other page layout and illustration packages on both the Amiga and other systems. This is achieved using EPSF (Encapsulated Postscript Format) files. As long as the DTP system you are using supports EPSF, then chances are that your *ProDraw 2* images can be pulled in and used without modification. *ProDraw* can also read EPSF files, therefore making it possible to edit structured drawings produced by similar programs such as those to be found in abundance on the Macintosh.

Once you've created your image, you'll may wish to print it straight out without bothering to pull it into a DTP package first. *ProDraw 2* supports both HPGL plotters and Postscript printers, as well as the more common preference-supported dot matrix printers. For postscript users, *ProDraw 2* includes extensive colour separation facilities. Unlike a bitmapped image, the quality of the final printout is dictated only by the quality of your printer.

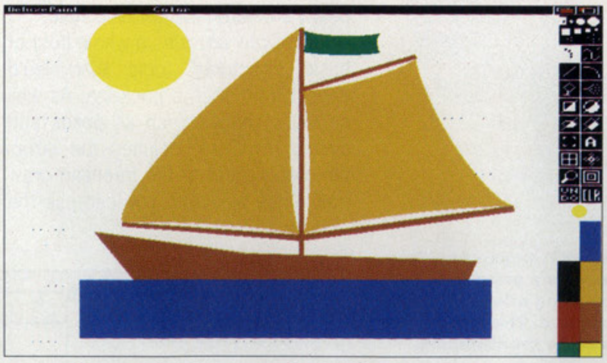
Draw to a Conclusion

The only real thing that holds *ProDraw 2* back is the Amiga itself. Even if you're lucky enough to have an Amiga with something like 9 megabytes of RAM, those dreaded Chip RAM warnings still manage to pop up all too frequently. The addition of a 1 Mb Agnus goes some way to solving this problem, but even then the chip RAM bottle-neck still proves to be a problem. *ProDraw 2* only really becomes usable for larger projects if you run it in medium resolution, which unfortunately has the adverse effect of removing much of the on-screen detail.

Gripes aside, *ProDraw 2* is simply breathtaking. Previous Gold Disk products have unfortunately suffered from operation speed problems, but *ProDraw 2* is fast both in use and in rendering. Although initially daunting, creating stunning artwork soon becomes a doddle, which is helped still further by its impressive range of editing features. If you're serious about your desktop publishing, *ProDraw 2* is a must.

PROFESSIONAL DRAW 2
£199.95 ■ 1 Mb Amigas ■
HB Marketing 0753 686000

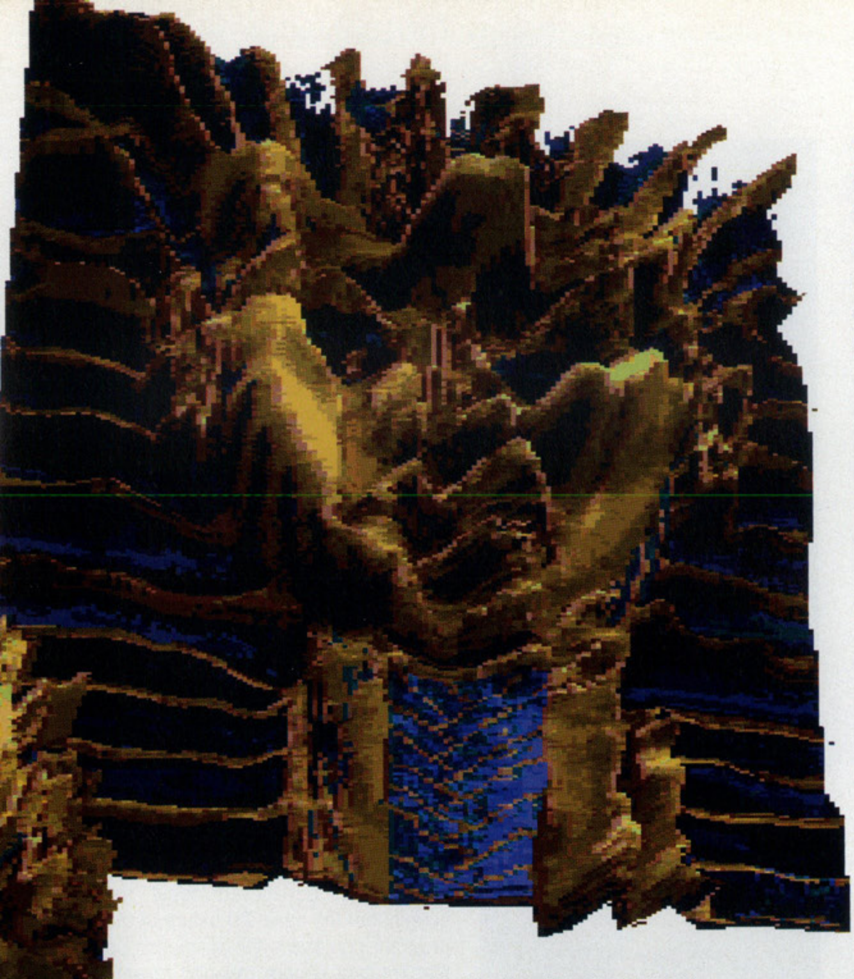
FROM BITMAP TO VECTOR...





If you already have a large collection of bitmapped clip art, then you certainly won't want to scrap them when you start to use *ProDraw 2*. Thankfully, the program provides two different methods of converting bitmapped artwork to IFF. The first involves loading the bitmap straight into ProDraw and then manually tracing over the top of the image. Although this can produce some very good results, it can be very time consuming.

A more favourable solution comes in the form of *Prodraw's* Auto-Trace facility. Included on the *ProDraw* disks is a separate utility that can be used to automatically convert IFF bitmaps to structured objects. Using a digitiser such as Digi-View, it is perfectly possible to pull structured images of real-life objects straight into *ProDraw*. This utility alone makes *ProDraw 2* the best structured drawing tool available on the Amiga.



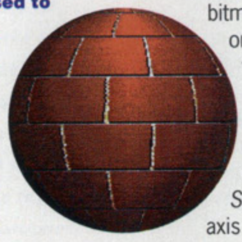
CONTOUR MAPPING

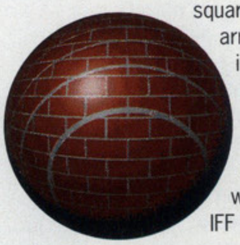
The contour mapping facility in *Photon Paint* produces this sort of remarkable effect. Comparison with the original of KINGTUT shows that the highpoints of the contoured picture correspond to the brightest areas and the low points with the darkest. *Turbo Silver* has a 'Terrain Module' that should produce a similar effect. See *Amiga Format 14* for examples of this remarkable effect.



TEXTURE WRAPPING

Texture mapping can be achieved using a picture of the required texture wrapped onto an object (as in the case of the *Photon Paint* picture of a brick pattern below right) or using a procedural description of the texture that is used to construct the object during rendering. This is the method used for the *Silver* brick pattern shown lower right. The final effect is, once again, much more convincing with *Silver* (although one of the parameters concerned with the number of layers of bricks going back into the picture produces the curious circular patterns of mortar. This effect will be explored in the tutorial in the next issue of *AF*.)





Contour Mapping in *Photon Paint 2* is also unique in that it involves converting a 2D picture into a 3D contour map before mapping another picture onto it. The contours are determined by assuming that the Value of each pixel (as in HSV – Hue, Saturation, and Value) represents its relative height. In other words the lighter the pixel the higher it is, the darker the pixel the lower it is. When it comes to mapping textures onto the folds of plain cloth or a face, this method is amazing – ideal for textile designers.

If a 3D model is to be animated, bitmapped textures wrapped onto it must cover the surface uniformly, front and back. Both *Turbo Silver* and *Forms In Flight II* (*FiFII*) do this but they use different methods. *Silver* wraps about each axis in several ways that are obvious when you see them but difficult to describe – so I won't. *Forms In Flight II* maps IFF pictures onto 'QSURFs' (normally known as SURFACE PATCHES). Again, these are difficult to describe – but I will.

A surface patch is a four-sided object that, in its simplest form is square and flat. If each of the sides is distorted, the patch can be made to occupy a 3D space. It is easiest to imagine as the patch on the knee of a pair of jeans. it starts out flat and squarish but once the legs arrive in them and the knee is bent the patch distorts into a 3D shape – a surface patch. In FiFII, an object can be made up of many QSURFs, each of which can have a different IFF texture attached to it.



SCULPT-ANIMATE SURFACE TEXTURES

Although *Sculpt-Animate 4D* has no texture mapping facilities, it does have some 'Coded' textures that work very effectively when used with some imagination and skill – as in this illustration produced by Paul Cowan of Electric Pictures in York.

The Metallic texture applied to the lock is about 50% reflective so some of the key and the surrounding environment can be seen. The art of using reflective surfaces is to provide something to be reflected. We will discuss this problem and some very effective solutions that Paul has devised in a future issue of the graphics section.

surface in one way or another. Natural-looking imperfections and textures can now be added quite effectively and, as a bonus, bizarre and unnatural images and textures can be wrapped around objects and animated – hence the marble leopard.

Some of these strategies and the degree to which they can be achieved with the software available on an Amiga, are described below and in the boxes on these pages.

Another widespread criticism of computer generated images involves the use of the now totally clichéd checkerboard pattern. This standard background is used mostly to provide perspective clues to give the picture a sense of depth. Surface mapping tends to give a much more realistic feeling with its subtler variations of detail, enlarged near the viewer and reduced with increased depth into the scene.

Surface Mapping Techniques

A certain amount of confusion has arisen in this subject because of the jargon. The methods used are often variations on the same theme and the terms used to describe them have been applied in different ways, especially by the manual writers for the various Amiga software packages. In an attempt to clear things up a little we shall examine the various techniques and attempt to define them. These definitions are not universal – but are those most often used and seem the most logical.

TEXTURE MAPPING is the most commonly-used term (and seems to be synonymous with 'Surface Mapping') to describe the general action of applying a texture or picture to an apparently 3D object or surface in perspective. Sometimes Texture Mapping is distinguished from Contour Mapping and Bump Mapping (described below) but generally these can be thought of as variations of the basic technique.

The texture to be applied can be constructed in one of two forms…

BITMAPPED TEXTURES are usually normal IFF picture or brush files that could represent textures – marble, wood, metal, grass etc – or any other image, such as a face, a machine, a landscape or the like. **CODED TEXTURES** are defined by an algorithm that controls their basic nature – the flow of grain in wood or marble, the size and distribution of speckles in stone, the distribution of mosaic tiles, the colour and reflectiveness of metal etc.

PICTURE MAPPING

The basic process of texture mapping is wrapping a bit-mapped picture onto an illuminated 3D object so that the original palette (in this case the 32 colours of the Tutankhamun picture) is transformed to give the effect of shading and highlights.



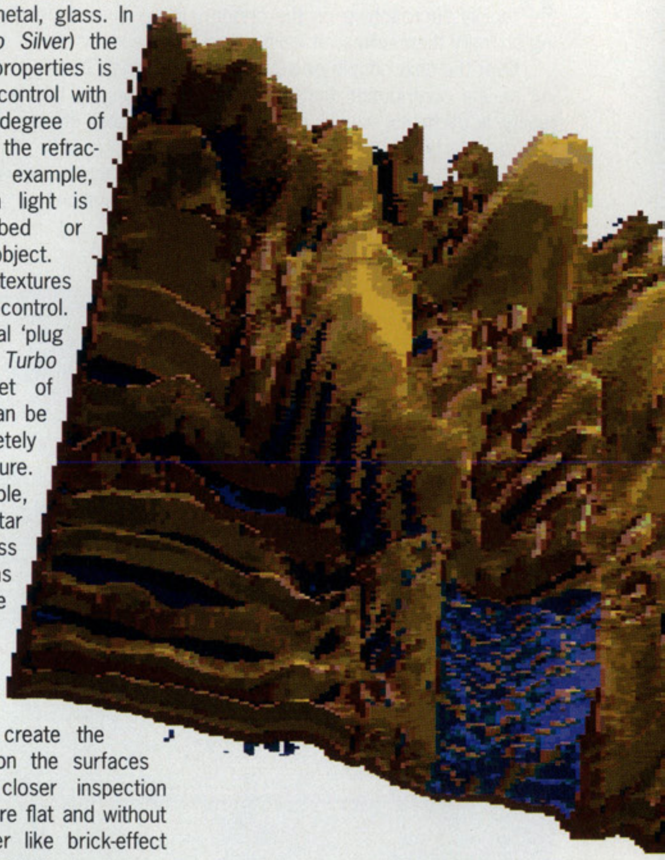
***Photon Paint* offers some control over illumination with its intensity, contrast and dithering sliders, plus light direction selector. Nevertheless, the final effect can be difficult to get right.**



***Silver* has a similar range of controls but they are easier to use and the final effect is very much more realistic and 3D looking. The blend of shades and highlight is beautifully smooth and the distortion of the original picture is much more convincing.**

In some packages (such as *Sculpt-Animate*) the choice of coded textures may be quite general with pre-defined characteristics – dull, shiny, reflective, metal, glass. In others (like *Turbo Silver*) the nature of these properties is under the user's control with sliders – the degree of reflectiveness and the refractive index, for example, define how much light is reflected, absorbed or transmitted by an object.

Some coded textures allow even more control. Each of the special 'plug in' textures of *Turbo Silver* have a set of parameters that can be changed to completely alter their nature. Bricks, for example, can have their mortar colour and thickness defined as well as the offset of the bricks and the axis of the courses.



In general, surface mapped textures create the illusion of detail on the surfaces they cover but closer inspection reveals that they are flat and without irregularities, rather like brick-effect or wood-effect wallpaper…

BUMP MAPPING creates the even more realistic illusion that the texture is embossed into the surface, casting shadows depending on the light sources set up in the model scene. This is achieved by uniformly varying the detailed illumination of the surface while calculating the shading effects created during ray-tracing.

Perhaps the most famous example is the 'golf-ball' texture used in the opening credits of *Tomorrow's World*, but anything from leather to bark or fish-scales can be simulated over any object. So far, no Amiga software package offers bump mapping but it is probably only a matter of time, now that 020 and 030 accelerator boards are becoming cheaper and more widely available. Bump Mapping in particular is very time intensive.

The way that textures are wrapped onto surfaces varies from program to program. Most coded textures are applied to 3D objects face-by-face so that a rotating sphere, for instance, would have a continuous texture of completely unbroken detail mapped across its surface.

Bitmapped textures can be applied in several ways. The most straightforward technique is to imagine that the original IFF picture or brush were projected onto the object like a slide transparency. If the object is a simple 'primitive' shape such as a sphere or cube, the illusion is created by simply distorting the picture, shrinking some areas and enlarging others. This technique is used by *Photon Paint* for its basic texture mapped effects, and *Deluxe Paint III* for its Wrap effect.

More sophisticated wrapping effects can be achieved by mapping the texture onto the contours of objects…

CONTOUR MAPPING of this sort is employed by *Photon Paint 2* for Wrap On Contour and by *Turbo Silver* for Brush Illumination. By allowing the 2D picture to be re-oriented in 3D space and treated as a source of illumination, this works exactly like slide projection, wrapping the picture directly onto every object that it illuminates – a unique effect.

G.T.S.

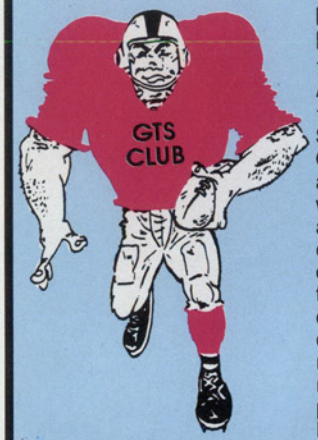
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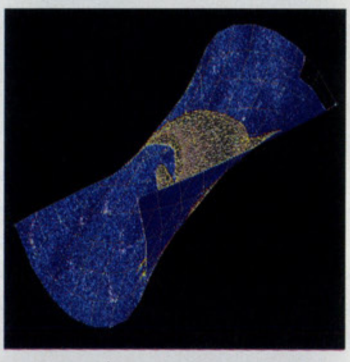
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TEXTURE MAPPING AND SURFACE PATCHES

***Forms In Flight II* will allow any 32 or 16 colour IFF picture to be mapped onto any surface patch (QSURF). The Dolphin in this picture has all its surface colour provided by a simple drawing of the skin texture of a Spotted Dolphin. The program is limited by its inability to use light sources so that rendered objects tend to look rather flat. Nevertheless, the main picture wrapped onto a single patch illustrates that it is a 3D object.**









Which Software Can Do What?

FORMS IN FLIGHT II provides a range of sophisticated tools, many of which are not available in any other Amiga graphics package. It is a full 3D modelling and rendering system using up to 32 colours in lo-res. HAM is not supported.

The interface relies on a rather clumsy set of menus with no iconic controls. Objects are manipulated on a single screen that can view in any direction and are moved and rotated by movements of the mouse similar to, but much less sensitive than, those used by *Caligari*.

The lack of HAM and ray tracing plus the awful interface are almost made up for by the wonderful QSURF system which allows objects to be constructed by simple angular box sections. These can easily be smoothed and curved into some of the most organic shapes possible on the Amiga. Added to this is Phong shading (a smoothing algorithm that removes the faceted effect of the models), and texture mapping onto the surface patches.

Animation is possible but objects can only be moved along paths, not transformed. Nevertheless the ability to map different textures onto each patch means that objects with complex surface detail can be rotated convincingly.

FORMS IN FLIGHT II
MicroMagic, £79.00
From Amiga Centre Scotland

TURBO SILVER is a 3D modelling, rendering and animation package with the most sophisticated set of surface mapping facilities in any program so far for the Amiga. It has been poorly marketed in Europe until now, but that is apparently set to change.

It has a good logical interface and the usual set of modelling tools (though a good deal of manual work moving individual points is required to produce subtle shapes other than pure extrude or spun).

Animation relies on 'paths' to move each object, but hierarchies can be set up and objects can be set to automatically rotate and/or align themselves with the path.

When rendering, each object (or face) can be any HAM colour and smoothed. It can also be a light source or a shaded object, matt or glossy, wrapped in an IFF picture or a coded texture with user definable parameters, or even fuzzy in the misty distance or sharp in close-up. If it is a light source and has an IFF picture attached to it, the picture will be projected like a slide. Its orientation can be rotated around any axis.

Specular reflections can be controlled by varying their size and hardness. In effect this controls how shiny or matt the surface looks, distinguishing between rubber, glossy plastic, painted metal and other subtle variations. At present the 'plug-in' coded textures include: brick, check, grid, marble, wood, angular and disturb, but only the bricks and checks are available in Europe. (WHY WHY WHY?) These are illustrated to some degree on these pages, together with some other examples of texture mapping.

The power of *Turbo Silver* speaks for itself via these pictures. A much fuller review of *Turbo Silver* and the Terrain Module which goes with it will be included with a tutorial on special effects in the next issue of *AF*.

TURBO SILVER
Impulse, £119.95
From The Software Business

PHOTON PAINT 2 is a 2D HAM paint and animation package. It includes extensive Surface Mapping tools and other special effects that can all be used to create excellent illusions of 3D objects.

Any flat brush can be wrapped onto a tube, cone, ball, ellipsoid, freehand shape, cube (all faces or each face) and the contour map described elsewhere. A light source can be set so that the wrapped object will have highlights and shading to enhance the 3D effect.

The ability to animate a series of *Photon Paint* frames means that objects can be moved about the screen, but the basic 2D nature of the program constrains this animation so that rotating texture mapped objects is very difficult.

PHOTON PAINT 2
MicroIllusions £89.99
From The Software Business

SCULPT-ANIMATE 4D PROFESSIONAL is probably the most powerful modelling, rendering and animation system available on the Amiga. It has a wide range of versatile modelling tools, an excellent interface, the fullest selection of rendering modes from wireframe to full ray-tracing, and a powerful range of animation tools (including a unique key-frame transformation system).

Nevertheless, with regard to texture effects it is the least powerful of the systems described here. Any facet can be any HAM colour and smoothing can be applied.

Dull, Shiny, Mirror, Luminous, Metal, and Glass surface textures are provided in a coded form so that they appear consistent from any view. There are no facilities for modifying any of them, and IFF brushes cannot be mapped. This is a great pity as it is the only weakness in an otherwise excellent system.

It seems unlikely that the situation will change because the developer of the *Sculpt* series, Eric Graham, has moved over to programming for the Mac. In spite of the lack of texture mapping and of control over the coded textures, some excellent effects can be achieved and these will be described in more detail in a future tutorial article on special effects.

SCULPT-ANIMATE 4D PROFESSIONAL
Byte-By-Byte, £368
From Amiga Centre Scotland

DRAW FOR ALL



Gold Disk, leaders in Amiga desktop publishing for a number of years, also know about structured drawing. JASON HOLBORN draws some of his own conclusions about *Professional Draw 2*.

To most people, importing their illustrations into a desktop publishing program can mean only one thing – bitmap graphics. If they need to plonk a picture onto the page, most people will reach for the old paint package and start daubing the pixels. Once complete, you save it out to disk, load your DTP program and pull it in.

It seems to look OK on screen, but what happens when you print out your document using a high-quality printer such as a laser or even a linotronic? You suffer from bitmapping. Even though your text may come out beautifully smooth, your graphics can look chunky and unprofessional. Surely there's a better solution than the old bitmap graphic?

Object of Attention

The answer lies in structured graphics. Instead of representing the image as thousands of individual dots of colour, structured drawings organise the picture into basic structures based on geometric elements such as lines, curves, ellipses and rectangles. This produces a description of an image rather than the image itself, leaving it to the output device to draw the image from this description. Using this system, the only limit to picture resolution lies in the quality of the output device.

Another advantage of structured graphics is their flexibility. If you've ever picked up a brush within a pixel-based package such as *DPaint* and then enlarged it, you'll already know what happens – the brush becomes chunky. However, carry out a similar operation within a structured package and the image stays smooth and free from the dreaded pixel chunkies. Such operations aren't limited to simple resizing, either, as will be revealed later.

Although a pixel-based package may arguably be easier to use, the results that it can produce can never match those that are to be obtained from a structure-based package when it comes to printing the image to paper. As the Chinese say, 'A Picture tells a thousand words'. It's very important that your illustrations are of the best quality possible.

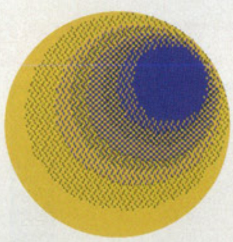
Introducing ProDraw

Gold Disk are no strangers to the Amiga Desktop Publishing scene. Their DTP package *Professional Page* is undoubtedly the number one package of its type on the Amiga. To complement that product Gold Disk have now released *Professional Draw 2*, a powerful structured drawing package that could finally put the Amiga on the DTP map.

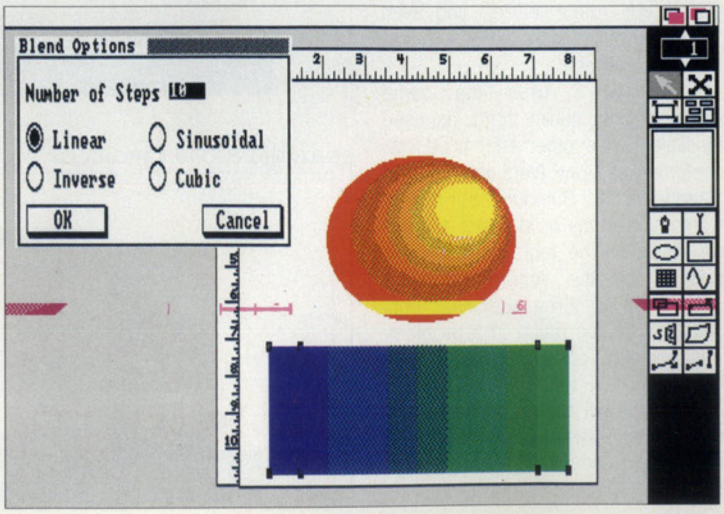
At first, using *ProDraw* is a little bit like using a pixel-based package. You can draw lines, circles and boxes just like you would in *DPaint*. However, the difference with *ProDraw* is that the objects you draw aren't stuck where you first put them. You can easily pick up any object (regardless of how long ago you may have drawn it), move it around to your heart's delight and then plonk it down somewhere else. Even if the object obscured a large area, *ProDraw* will display what lay beneath the object before it was moved. It's almost as if images are layered – whenever you remove the top layer, the layers below are automatically displayed.

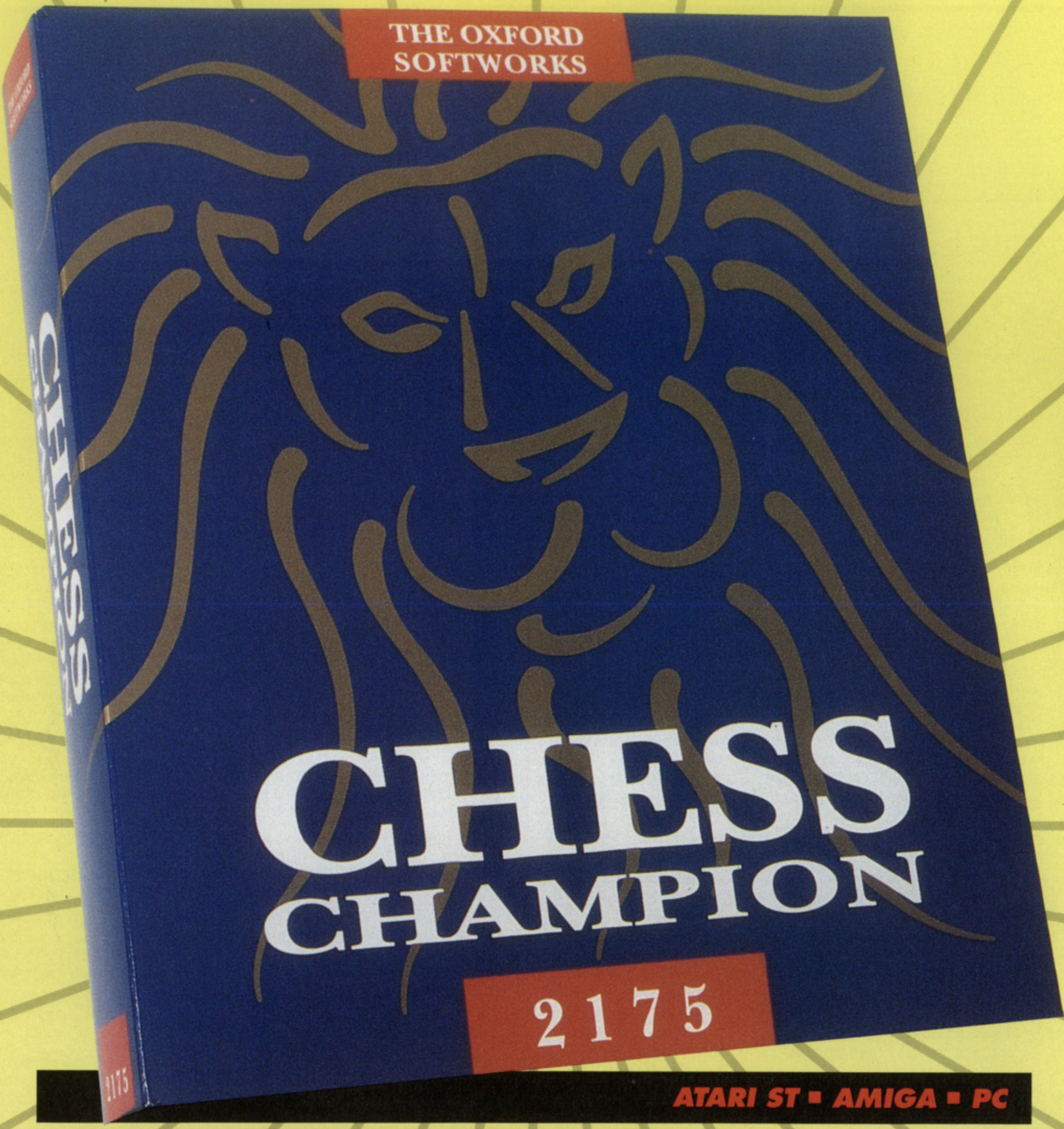
ProDraw provides a whole host of basic structured tools that you'd expect from such a package. As well as basic shapes such as boxes and circles, *ProDraw* includes the structured equivalent of the freehand draw tool. Once selected, you can use the mouse to draw a complex object on the screen. As soon as you let go of the mouse button, *ProDraw* converts your squiggle into a structured object by converting it into a series of bezier (pronounced bez-ee-ay) curves.

Objects can be cloned (duplicated), grouped, locked in place and depth arranged with other overlapping objects. New to Version 2 of *ProDraw* is the 'Create Compound Object' option which allows you to create a 'donut'-like object (as the manual describes it). Put simply, this allows a object within another object to become transparent, therefore creating a hole the shape of the smaller object within the larger object. If you imagine the small object to be the shape of the hole in a donut, and the larger object to be the



RIGHT: Colour blending allows a great range of shading effects to be applied. The results can be breathtaking.





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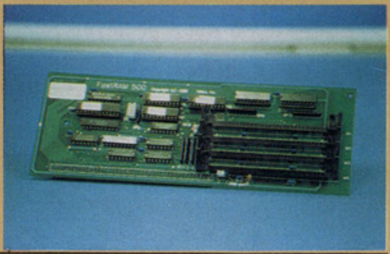
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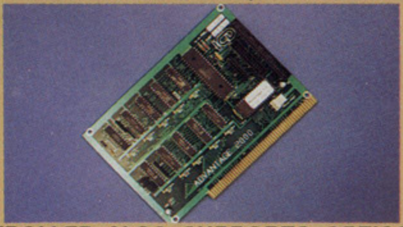
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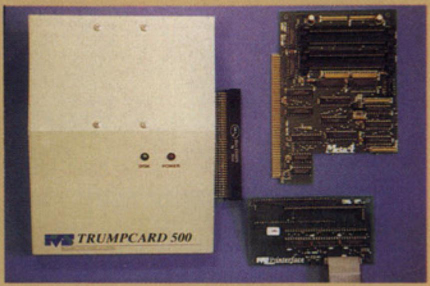
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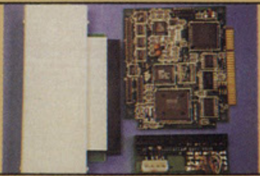
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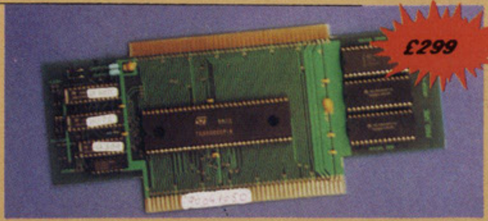
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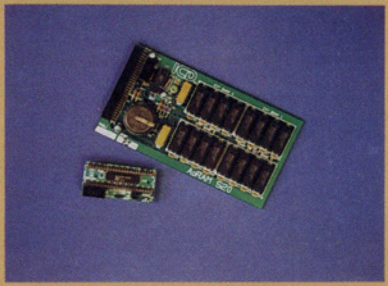
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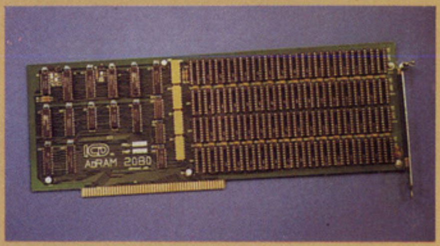


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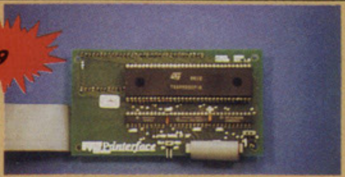
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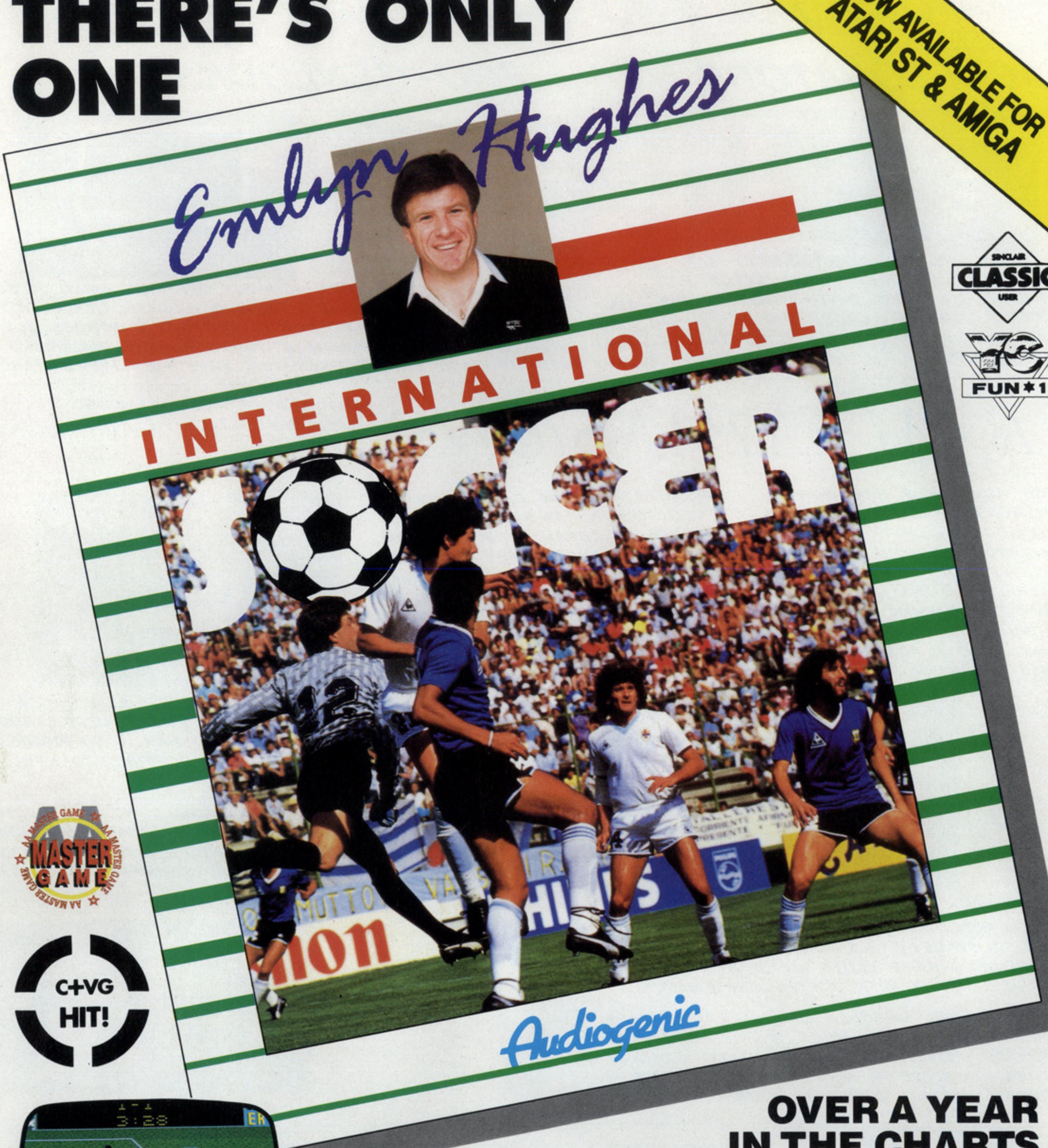


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SCREEN PLAY



THE RATINGS EXPLAINED

GRAPHICS
Good graphics are an important part of any game: if the power is there, it should be used to the full. Both static and moving graphics come under scrutiny in this rating, but remember, graphic wonders alone do not a great game make...

SOUND
With stereo capabilities the last thing you want to hear are Spectrumesque beeps, right? Title tunes and effects all add to the atmosphere of a game and good sound can greatly increase your enjoyment.

INTELLECT
How much real thought do you have to put in to play the game? Just because a game is mindless doesn't necessarily mean it's bad, but a game with a high intellect rating says immediately that you'll need to think to gain maximum enjoyment.

ADDICTION
How easy is a game to pick up and play? How much sheer fun will you get from it? Will you keep coming back? Important questions, all answered by a quick look at the Addiction rating.

OVERALL
A percentage mark that takes into account all the ratings, plus extras like lasting interest, documentation and packaging.

THE TEAM
There are two main *Amiga Format* reviewers: Andy Smith is an ex Spectrum owner who's been playing computer games for many years now and writing about them for almost as long, cutting his teeth on *ACE* before moving onto *Amiga Format*. Andy likes any type of game, from shoot-em-up to strategy game, from adventure to arcade conversion.

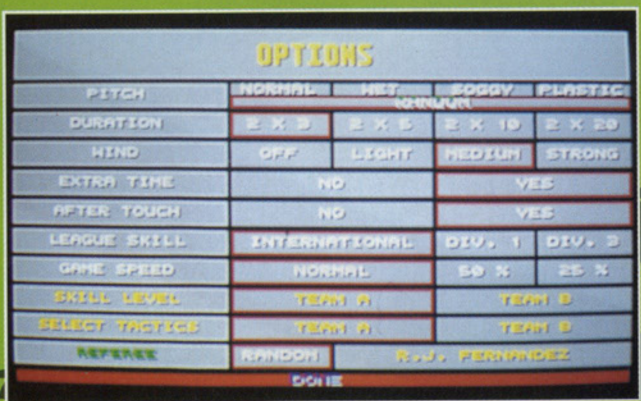
Maff joined *AF* after doing sterling service on *ZZAP! 64*. Recently he's been splitting his time between us and our sister mag *ST Format*, but after seeing the light has come out of the cupboard under the stairs and joined us full time. Maff's a solid all-rounder with a very nifty trigger finger and more than a match for most would-be high score challengers.



Playing as Italy against Austria on a plastic pitch you now have a corner and can decide on the direction and strength of the kick.



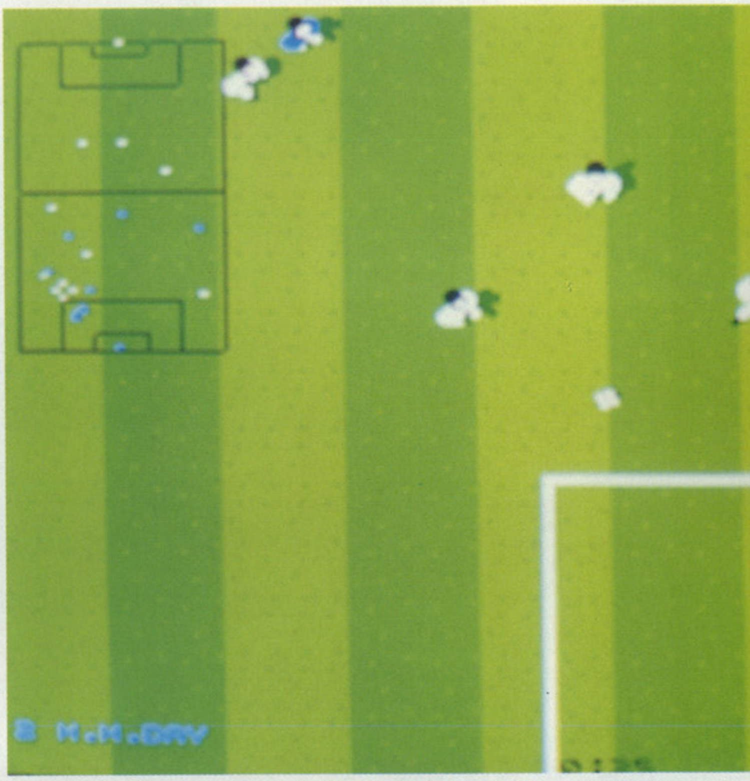
Fancy yourself as a fashion designer? Here you can pick the style and colour scheme of your fave team's kit - having them play all in pink can be a laff!



The options screen where you can alter any outside influences and decide game length, amongst a myriad of others.



The World Cup league table shows each team's positions within their group.



The second half – Austria are threatening with a free kick near the box.

KICK O

ANCO £19.95 ■ Joystick

One year after an original that set the games-playing world alight, the much-anticipated and much talked-about sequel has made its appearance. *Kick Off 2* looks set to follow on from *Kick Off*, but with a host of new features to enhance the superb gameplay. Question is, has Dino Dini been too ambitious? Has he screwed up?

To start with, up to four players can play simultaneously (two players against two players). There's a league competition so loads of you can all compete together. There's a cup tournament, so you can knock your friends out and grab the glory, and there's also the World Cup tournament so you can persuade 23 other people to take a team each.

The gameplay enhancements include a new spotted ball, different match surfaces (including plastic and soggy) the ability to change the team strip, the choice of long or short throw-ins and - possibly one of the biggest differences - the introduction of defence walls during free kicks.

There is also a new control touch added to the ball, called aftertouch. The player is now able to bend the ball slightly after it's been kicked by holding the joystick in a certain position, which can be very effective but does take a lot of practice.

The other main improvements include the ability to load in teams from *Player Manager* (the first real follow-up to *Kick Off*, for one player, which contained a whole management game) so you can play your lovingly-created team in the league against another team that someone else has spent blood, sweat, tears and lots of money building up. Now the player



FF 2

can also have control over the strength and direction of corner and goal kicks.

The majority of play is much the same as before. Each team contains - of course - 11 players and the player you are controlling is highlighted by a line beneath his feet. As in *Player Manager* you have a choice between controlling the whole team, in which case control switches constantly to the player nearest the ball, or playing in one position.

Once you've gained possesion of the ball your man automatically dribbles it and passes and shots are made by pressing the fire button and holding the joystick in various positions. Controlling your team takes a while to get used to, but practice really does make perfect and after a while your handling of the player improves significantly. ***Andy Smith***

GRAPHICS AND SOUND

Spot effects, such as the ball thuds and the crowd cheers, are excellent. The graphics are great too. The action is all viewed from above, which works very well for a game of this nature. The sprites are well defined and wonderfully animated and the pitch graphics are highly detailed including observations such as muddy areas in the goalmouth on soggy pitches and a squeaky-clean surface on plastic pitches. The graphics and sound mix together extremely well and compliment play brilliantly.

LASTING INTEREST

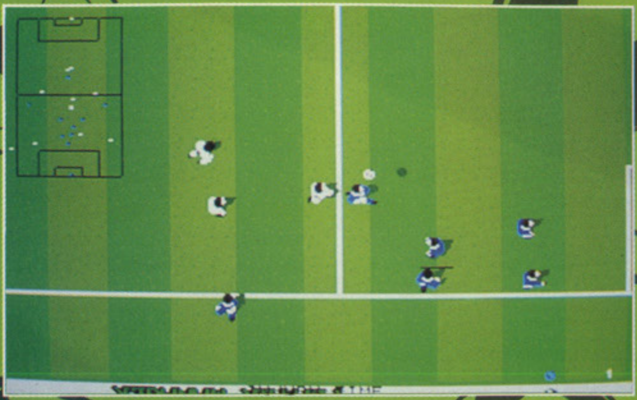
Well, Brian, this will run and run. It's perfect for 'booting up' (groan!) whenever you fancy either a quick 10 minutes or a good hour or three. In years to come this won't be sitting on your shelf collecting dust, because you'll still be playing it.

JUDGEMENT

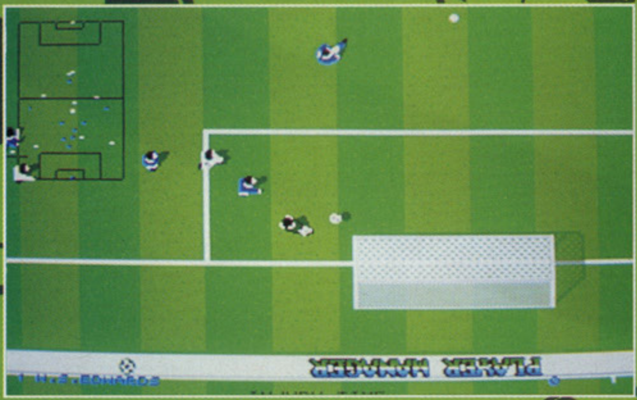
If you don't own *Kick Off*, go for this instead. If you do already own it or own *Player Manager* it's still well worth considering. This is the best footy game to have appeared on any machine and the beauty of the game is the fact that it just plays so damn well. Novices will enjoy it right from the start and it's surprising just how skilful a player can become after just a few short weeks.

Last year, here at Future Publishing, *Kick Off* inspired us to start a league which grew into a four-division affair with 32 players taking part - even people who'd never played any game before! The league grew into a Cup tournament and hardly any work was done for months - the game actually became officially banned during working hours. Now there's talk of re-starting the whole thing again with *Kick Off 2*. You can't get a much higher recommendation than that.

GRAPHICS	9
SOUND	6
INTELLECT	4
ADDICTION	9
OVERALL	94%



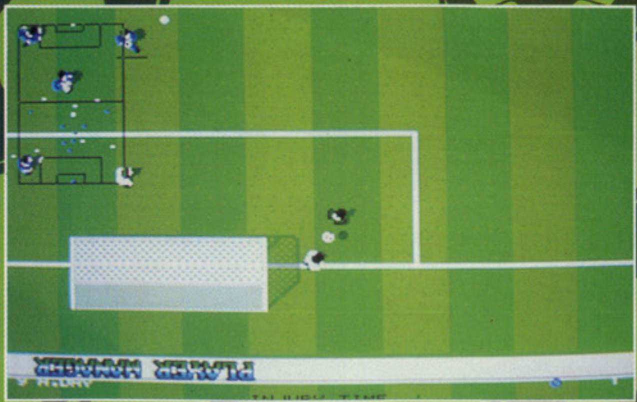
The Italians are getting heated and have given another free kick away. The Austrians float the ball into the box..



...the keeper has dived and missed the ball, the Austrians have a golden opportunity...



...as their striker nods the ball towards the other side of the goal...



... but, oooohh! How unlucky, the ball's hit the post and will be collected by the keeper. Italy breath a sigh of relief.

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Before starting each wave you're left in no doubt as to what you're supposed to be doing.



A Klax will be created when you tip off the white tiles from the paddle onto the white one in the bin.

KLAX

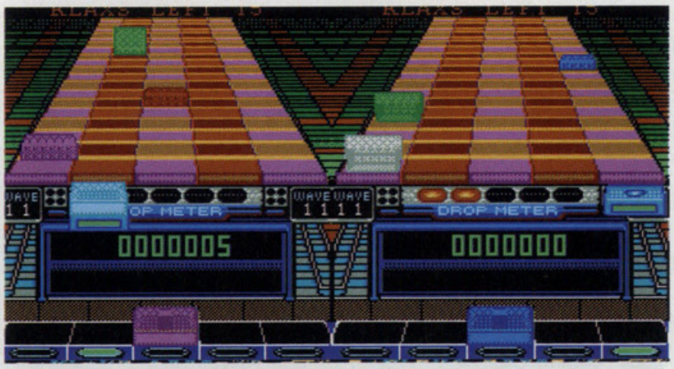


DOMARK £14.99 ■ Joystick or Keyboard

Frankly, it comes as a nice change to play a game in which you don't have to save the world from aliens, run about kicking seven shades out of baddies, or race round a maze collecting keys or pieces of puzzles. In *Klax* the only objective is to survive as long as possible and score points.

The game is very easy to play. A horizontal platform five lanes wide sits pointing towards you. Coloured tiles start at the end furthest away from you and roll towards you. There are five bins at the near end of the platform that the tiles fall into. Each bin holds five tiles, but should all the bins fill up then you lose a life.

How do you stop them filling up? You can't really, but you can buy yourself time by using a small tile catcher at the end of the platform, which you can move left and right to catch tiles as they fall off. Then you can decide which tiles to drop in which bin by hitting a key and flipping them off the catcher into the bin. And here's the key to winning the game - any line of three or more tiles of the same colour, either vertically, horizontally or diagonally, makes a Klax. The Klaxed tiles then disappear, leaving more room for more tiles in the bin.



In simultaneous two player mode where things can get very confusing (and heated!).

The game is played in waves, with a specific objective given for each wave. For example, you may just have to get three Klaxes, or maybe three diagonal Klaxes, or score 10,000 points. The points system is based on difficulty. Anyone can get a vertical Klax, so you only get 50 points for each one. Horizontal Klaxes are harder, so score 1,000, while diagonal ones are harder still and score even more points. Once a wave is completed points are awarded and you move onto the next wave.



Errm... the catcher is completely full, and there's no where to drop them and ...help!

That's basically it. Oh yes, the catcher at the end can hold up to five tiles at any one time, so you can organise Klaxes slightly more easily and you can also flip a tile back half-way back up the platform to gain yourself a couple of seconds while you go for another tile. Any tile that falls off the end uncollected by the catcher scores one on the drop meter - once you've filled that up you lose a life. Plus, of course, the tiles speed up and more colours appear as you progress through the levels, making it even harder to get the particular Klax you're after. ***Andy Smith***



The next wave. That blue diagonal earns a massive 5,000 points.

GRAPHICS AND SOUND

The sound effects are nothing to shout about, but at least you know when your catcher is full and when you've made a Klax. The graphics are nothing special either, though the diminishing perspective is quite pleasing. The viewing angle does make it a little difficult to tell when a bin is full, for example, but the thudding sound effect lets you know if you try to put more tiles in it.

LASTING INTEREST

A game to last for years. It's a 'quick 10 minutes' when you feel like it and it's also a 'good three hour session' when you've got time. A timeless game that you'll come back to again and again.

JUDGEMENT

Look at that! Right the way through the review and not a mention of *Tetris*! Comparisons have to be made simply because they are both very simple space-filling games that play remarkably well. *Tetris* is a slightly better game, but *Klax* gives it a damn good run for its money and it really should be in your library.

GRAPHICS	6
SOUND	6
INTELLECT	7
ADDICTION	9
OVERALL	88%



Things start to get hot, as fire arrows reign in on Level Two.

DYNASTY WARS

US GOLD £19.99 ■ Joystick

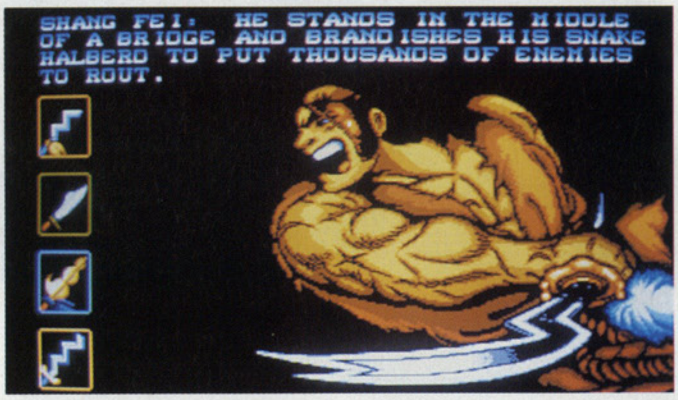
China in 184 AD. A group of soldiers murder wave after wave of weaker opponents. In response, the remnants of the Han clan lead this horizontally-scrolling quest for revenge through ancient China, splatting anything in sight.

The horseback heroes can either fire fast, stabbing short-range shots or store them up into one massively mean megablast.

The evil General's minions aren't tough; one quick poke in the head and they're history. Save up a big shot, by holding the fire button down, and a single blast can bag three at once. The end-of-level Generals are a different kettle of foe, though. They've mounts, decent armour and extremely large weapons. They'd pose no real problem if you could face them one on one, but they pop up when the screen's already undergone a population explosion.

This is where the Dynasty Warriors play their trump card – tactics! Rather like a medieval air strike, with rocks or fireballs instead of Napalm, magic cleanses the area. Tactics kill all normal folk and weaken the Generals, but leave you unharmed.

The four Han clan warriors who are on offer vary in ability, with the amount of damage they can take balanced inversely with the amount they dish out. A real big hitter is needed to waste the Generals, but a durable weak-weaponed guy has the advantage of surviving long enough to actually meet them. And of course famous warriors like these can't wander round with a wimp's weapon all their lives, so en route there are more powerful blades to collect and keep, as well as extra hit points which help to cure any warrior who is careless enough to get sliced. ***Trenton Webb***



Don't mess with Shang Fei, especially on bridges!



An evil general gets wicked at the expense of Liu Beh.

GRAPHICS AND SOUND

The introductory screens create an atmosphere of legend and these pictures are echoed on the playing screen with animated faces that contort in anger and pain, but this level of detail isn't carried into the battle. The backgrounds are excellent, but the playing area is too small to cram in the detail, especially at the end-of-level showdown: there are so many people on screen it's hard to know who you're killing. All very realistic, but not helpful.

Annoyingly, the music plays throughout the game. Not that the music is bad - it's atmospheric, if a tad up-tempo. The irritant is simply the fact that there are no sound effects. All the obvious opportunities for blood-curdling martial arts battle cries and the crisp swish of blades have been missed, which is sad.

LASTING INTEREST

Dynasty Wars' core problem is that there isn't an awful lot to do! With only two modes of attack you either have to use spear power to spike enemies or call in magical tactics. And with only tiny guys on horseback to look at – some of whom apparently ride side saddle! – there's not much to keep you rivetted to the screen. The similarity of foes too, makes the game easy, with the higher levels reachable in the first few attempts. The war, it seems, will definitely be over before Christmas, maybe even August!

In spite these factors and the deliberately slow pace *Dynasty Wars* has an undefinable charm. There's a sense of tension, while the sheer number of opponents makes life awkward. The levels, while similar in concept, are very different in design, ranging from burning bridges to snow-swept wastes. It's worth getting to each new level just to have a look at the scenery.



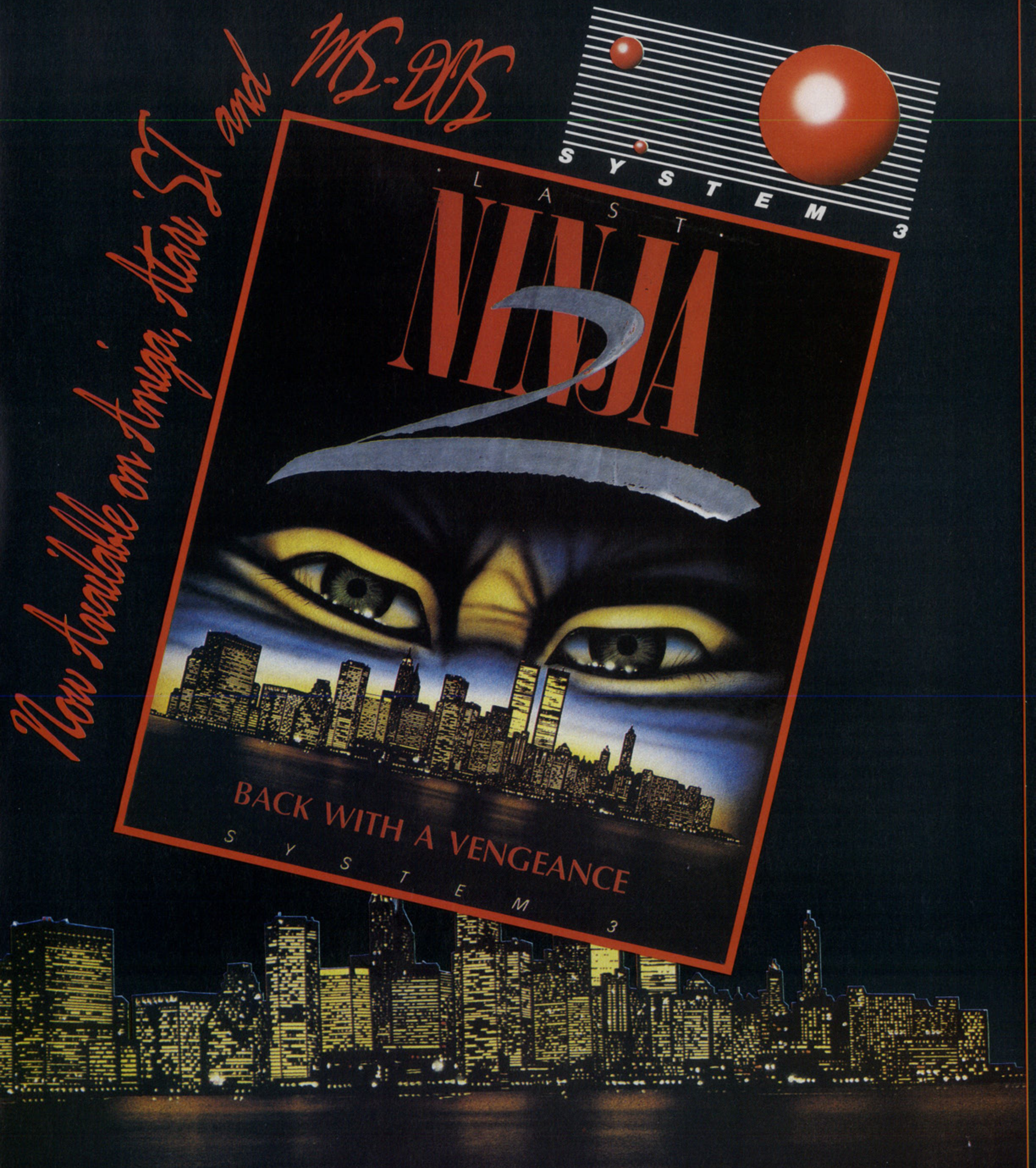
The killer snowballs perpetrate an attack on Level Four.

JUDGEMENT

A reasonable chop-em-up which has the distinction of horse-riding heroes, enough original elements and is bound together with a certain slick style. Once it's finished – which shouldn't take long – it's unlikely you'll ever play *Dynasty Wars* again. But while you're still trying to top the big nasty who ruined the Han Clan, *Dynasty Wars* should prove an enjoyable diversion.

GRAPHICS	8
SOUND	5
INTELLECT	2
ADDICTION	6
OVERALL	69%

CLASSIC GAMES FROM SYSTEM 3

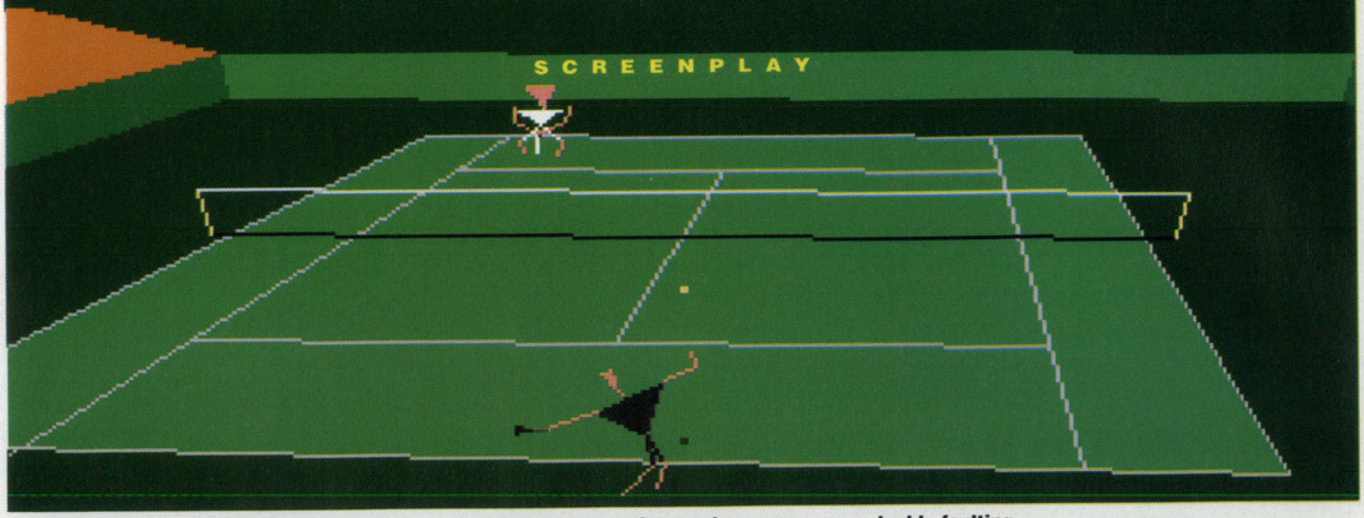


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IMAGE WORKS, Irwin House, 118 Southwark Street, London SE1 0SW. Tel: 071-928 1454 SCREENSHOTS: Atari ST 4 & 5 Courtesy of MCA



Serving is automatic on the easier levels, so at least you're not going to give games away double faulting.

INTERNATIONAL 3D TENNIS

PALACE £24.99 ■ Joystick

Just as art can occasionally attempt to imitate life, so computer games programmers attempt to do the same thing, but usually with very differing results. One of the biggest hurdles the programmers have to jump is getting human-like figures into games and then getting them to move with human smoothness and fluidity. That's why Palace and Sensible Software have spent nine months developing this 3D tennis game.

There are three distinct sections to the game: single match, Tournament and Season. The single match is obvious enough; you play against either a friend or the computer for a defined number of sets. The Tournament is slightly more complicated, in that there are 72 tournaments to pick from, each with a different amount of prize money to be won, and again the number of sets can be defined. Then there's the Season, which allows you to make a living by playing in various tournaments throughout the year.

There are several skill levels, but the one you'll want to get some practice in on is the 'Amateur' level. Here the computer takes serves for you, moves your character around the court to get him in the best position to return the ball and then flashes your character to inform you that he's in range to return a shot. You can influence things slightly by moving your man closer to or further away from the net if you wish and also by holding the joystick in any one of nine positions after you've made a hit, which will influence the direction of your return.

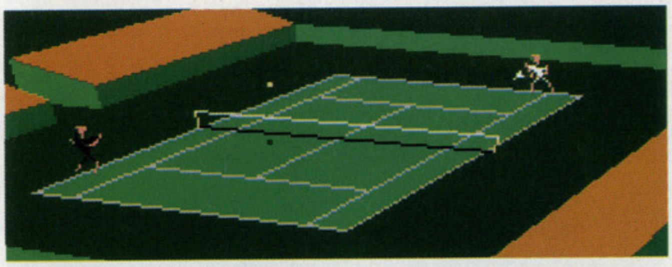
Step up a skill level and you can then start directing serves, but you still get the flashing. Go up another skill level and the flashing disappears. Go to the top level ('Ace') and you can then start adding spin (top and back) to the ball by hitting the firebutton again and moving the joystick forwards or backwards. ***Andy Smith***



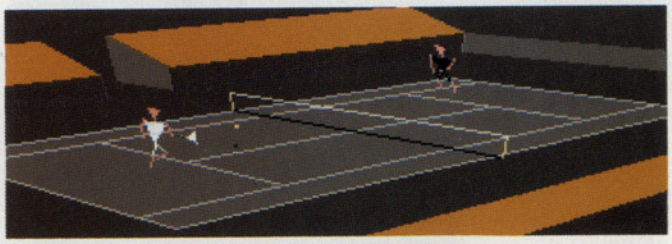
Your races across to return a shot. *Inset*: next stop Auckland.

GRAPHICS AND SOUND

The sound effects, including a digitised score keeper and umpire, are excellent, giving real atmosphere to the game - atmosphere which the graphics unfortunately take away. The programmers have substituted reality for triangular racquets and triangular players in the search for speed and fluid movement. This works to some degree. If you don't like the viewing angle of the matches you have a choice of nine others and there's even one that allows you to position the camera just where you want it



A long distance view of the game.



It's not all lawn stuff, here you're on cement.

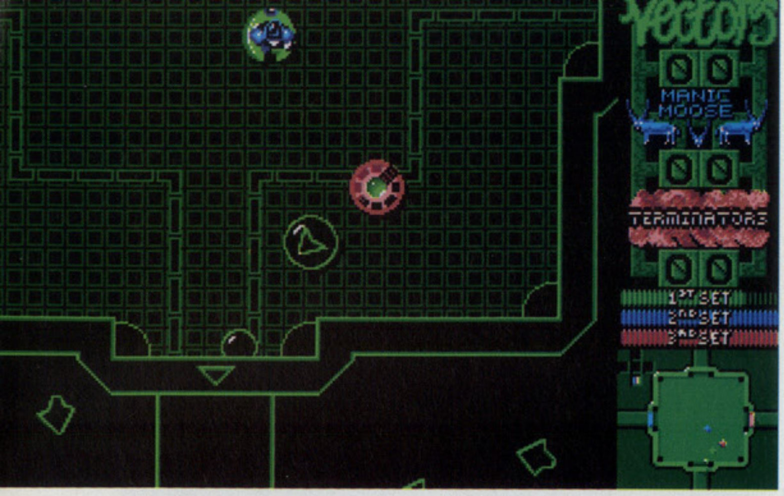
LASTING INTEREST

The graduation of skill levels has been well judged and although it still takes a while to get to grips with amateur level, once you have you'll be wanting more control so can step up a level (the computer players get better as you step up the levels too). One to keep you coming back whenever you fancy a game.

JUDGEMENT

It's got some hot competition from the likes of Ubi Soft's *Pro Tennis Tour* which, it has to be said, is altogether a better game. *International 3D Tennis* is good, but the graphics let it down and, although it plays well, it doesn't play as well as Ubi Soft's game. A nice attempt but not good enough to steal *Pro Tennis Tour*'s crown.

GRAPHICS	5
SOUND	8
INTELLECT	5
ADDICTION	7
OVERALL	79%

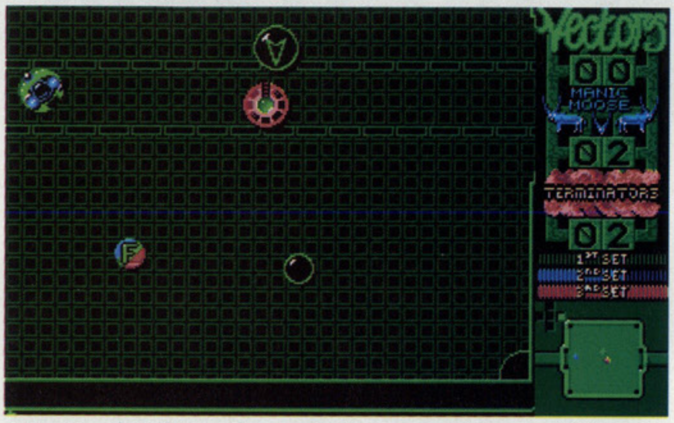


The Vector player has made a mistake and put the projectyle into his own goal in the Frantic Zone (this is a regular occurence for all teams!) The last opposing team to touch the projectyle will be credited with the goal.

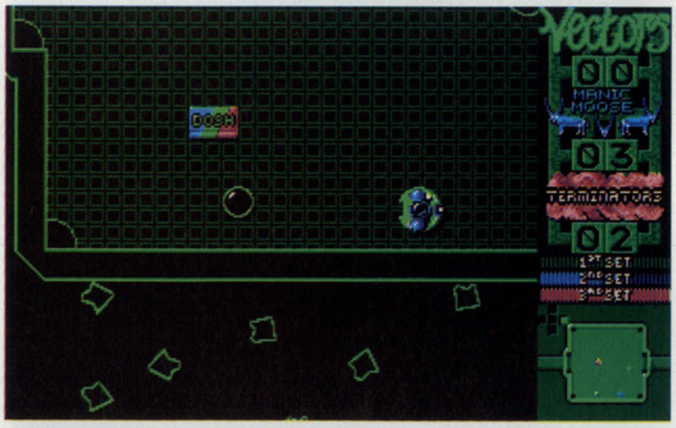


PROJECTYLE LEAGUE TABLE							
TRIBE	P	W	D	L	F	A	PTS
ELDRITCH CATS	004	004	000	000	0058	0031	032
JOVIAN JELLO JUGGERNAUTS	003	002	000	001	0031	0017	020
DEVILS	003	001	000	002	0032	0024	016
MANIC MOOSE	004	000	001	003	0023	0032	014
SLEDGE HAMMERS	003	001	000	002	0023	0024	010
UZTEKS	004	000	000	004	0025	0040	006
VECTORS	003	000	001	002	0015	0025	006
TERMINATORS	003	000	000	003	0016	0030	004

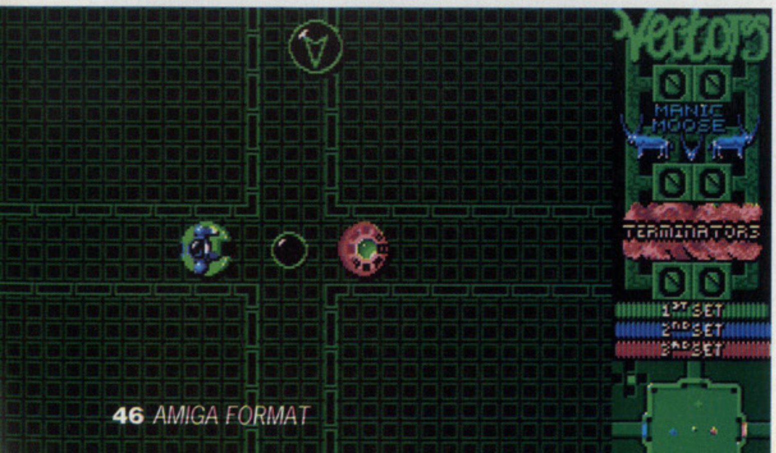
After every match the league table is updated. After three matches the Terminators are bottom of the league, so it must be time to stop messing around and start playing!



Collecting that 'F' symbol would be a good idea as it instantly freezes the other two players for 10 seconds which is plenty enough time for a skilled *Projectyle* player to get the thing away from his tunnel entrance and into one of the oppositions'. If someone gets there before you, though, you're in big trouble!



ABOVE: If the blue (Manic Moose) player can get to the 'DOSH' symbol he'll be able to spend the money on improving his team's statistics. BELOW: Kick-off at home to the Vectors. You start the game defending the goal on the right. Next set you'll defend the left and then the top. This also applies to goals in the Frantic Zone.



Most ball games are complicated enough. Football, basketball, hockey and the rest all have their own peculiar rules which can have even an aficionado scratching his head at times. And these games are all played on one single pitch – just imagine what a game that was played on five pitches would be like!

This game of three players, three halves and five square pitches is surprisingly simple: eight teams, each of eight players, make up a league. One, two or three human players take control of a team each and during a match attempt to score goals in either of the two opponents' goals. The team with the most goals at the end of the three periods wins.

The five pitches are all linked by tunnels, through which no players can pass. The centre pitch is where the kick-off takes place and on each wall there is a tunnel entrance leading to another pitch. Three of the four entrances are colour-coded to show that the pitch on the other side contains a goal belonging to the team with that colour. Send the ball – or projectyle as it's known in the game – through the tunnel and it emerges onto another pitch that has that team's goal on the opposite wall.

The tunnel on the fourth wall however, which is the one always at the bottom, leads somewhere a bit special – the Frantic Zone. On this pitch there are three goals, one for each team.

The rules of the game are terribly easy – anything goes! This means you can bump, bash and smash into the opposition as often as you like in your attempt to get to the ball and knock it around to keep it out of your pitch, then get it onto an opponent's where there's a goal.

Once a goal is scored the scoring team is credited and play begins again from the centre pitch (if an own goal is scored – which happens very often, especially in the Frantic Zone – the opposing player who touched the ball last is credited with the goal.



The match then continues in this fashion until the end of a set, at which point all the teams move one place to the right. Suppose your goal was on the top pitch for the first set: once the second set starts, your goal will be on the right-hand pitch. No-one ever gets the bottom pitch because that's always the Frantic Zone. After three sets (about six minutes of real time) the match is over, the scores are logged and the points are dished out.

The players each have peculiar attributes and all remain in the same pitch that they start the

With training mode selected the player is given the opportunity to improve his side by spending money collected during the game.





The first match of the season, away to the Jovian Jello Juggernauts and the Devils. The Juggers are the purple guys nearest the Projectyle and you're the pink guy near the extra stamina benefit.

PROJECTYLE

Electronic Arts £24.99 Joystick



game in, so it's well worth checking out their stats before deciding where they should play – a fast chap on the start pitch is a must.

Before a match the players can be trained, and their attributes increased: however, not only do they then run the risk of injury but training costs money and the only way to get any money is to pick up the dosh symbols that appear on the pitch at random. These benefits appear regularly throughout the match on all the pitches and can be collected by the first player to slide over them. The money can be used to finance your training program while all the other benefits – such as 'freeze opponents' or 'block exits' – only last on the pitch they were picked up on and only for a maximum of 10 seconds.



The closest the gameplay comes to a game in the real world is ice hockey. The players slide all over the shop in pursuit of the projectyle (your players automatically turn to face the ball wherever it moves) and you're able to move the player using the joystick with the fire button acting as the accelerator. ***Andy Smith***

GRAPHICS	9
SOUND	7
INTELLECT	5
ADDICTION	8
OVERALL	90%

GRAPHICS AND SOUND

The perspective, viewing from directly above, works very well and everything is smoothly animated. The effects are fine and so is the music – and you can toggle between the two at will. Games are played on different pitches belonging to different teams, which makes a welcome change during the game not only from the aesthetic viewpoint, but also because the different playing surfaces change the way the game's played. Looks great.

LASTING INTEREST

Bags of it. The shortest league season requires you to play 18 matches, so get ready for some long playing sessions. The multi-player option and multiple skill levels mean you won't burn this out for a very considerable while: and fortunately there's always the save game option to fall back on.

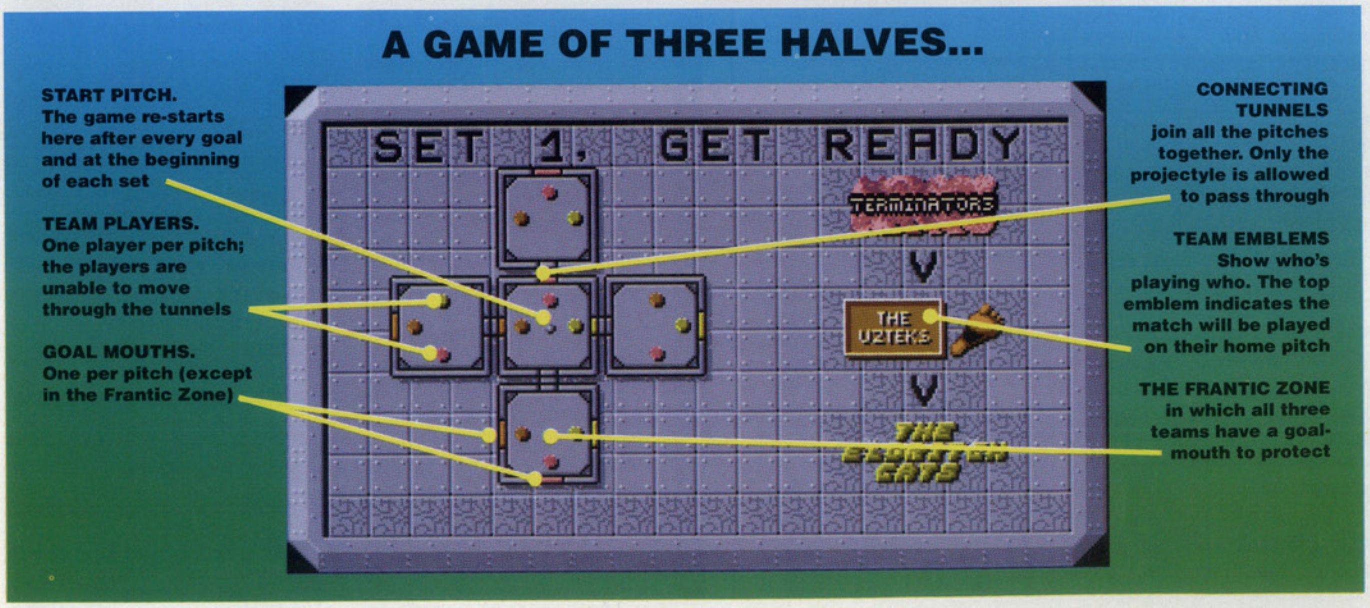
JUDGEMENT

The action is fast and furious – especially with a couple of friends – and though at first it seems as if too much of the gameplay is left to luck, a few hours of play will convince you that it is in fact very skilful. You need to use some sound tactics to beat the better of the computer-controlled teams. Cracking stuff that can be as exciting as *Kick Off* when you've got a few mates round.



Away to the Devils and it's a tense moment as the projectyle leaves the start pitch and goes through the tunnel towards your goal pitch.

A GAME OF THREE HALVES...





Snakes and bats attack our muscle-bound hero under a thunderous sky.

THE PLAGUE

SOFTWARE BUSINESS £19.99 ■ Joystick

As Earth wars become more and more dangerous, costing the lives of an incredible number of people, scientists begin research into the development of 'enhanced' animal species capable of surviving nuclear attacks, thus eliminating the fear imposed by enemy warheads.

Reasearch has been going well for a number of years – so well, in fact, that nuclear war has been discarded altogether and the governments are returning to traditional (and arguably less devastating) battlefield combat.

Unfortunately, as is the way with genetic experimentation, a biological demon has been found in our midst. Within the genetic breeding ground a deadly plague has broken out. The virus spreads quickly, affecting the bodies and minds of all its victims.

Once peaceful 'super-humans' have been transformed into evil, mutated warriors, hell-bent on causing death and destruction across the scientific complex. Some of the scientists are trapped within the complex, suffering from early symptoms of the disease.

You play a mighty soldier, your body adapted by laser surgery to protect you from the virulent illness. Armed with the latest laser weaponry you must infiltrate the now-ruined complex and wipe out the mutants, rescuing any survivors who may yet still be saved by precision surgery. At the beginning of the game you are armed with a laser rifle that can be powered to release a dangerous 'mega-blast' beam, destroying all in its path. Attackers may swoop in from all directions, however, so picking up extra weapons may come in useful for picking off jet-attackers and the more heavily armoured amongst the foe.

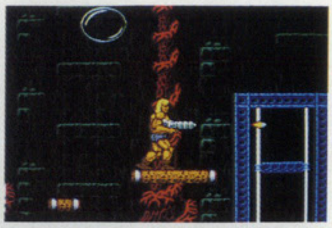
At the end of each stage is a grotesquely mutated being that will soak up a number of shots before it explodes, allowing you to gain access into the deeper regions where the effects of the plague are even more apparent. Just remember – they were all human once! ***Maff Evans***



Megadeath-dealing caterpillar on the loose! Where's the 'Raid'?



Launch that beam skywards and take out those jet-pack flyers.



Don't miss the lift, but watch out for those deadly rising bubbles.

GRAPHICS AND SOUND

The Plague has some extremely nice graphics, with well drawn and colourful backgrounds scrolling smoothly behind the impressively sized sprites – the animation could have been a touch more interesting, though. The real problem is the sound. The music sounds thin and incredibly dated and the sound effects are just too weak to be true. The powerful image invoked by the graphics is completely lost when the game is played with the volume on anything but 'off'.



Oh, look! How nice! Someone is keeping their eye out for you!

LASTING INTEREST

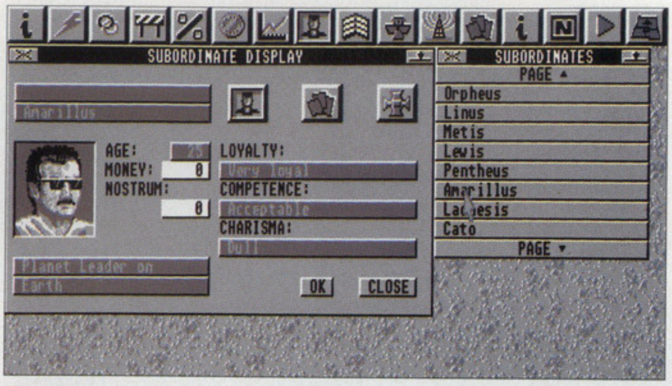
The levels themselves aren't really that difficult to master. All that has to be learnt to romp straight through is the order in which the aliens appear. The difficulty starts when the end-of-level gaurdian is reached. A combination of vibrating trigger finger, luck and telepathy is needed to judge the timing of jumping and ducking while still piling the shots in. After dying a dozen times at the hands of the same alien, frustration and broken joysticks are a formality.

JUDGEMENT

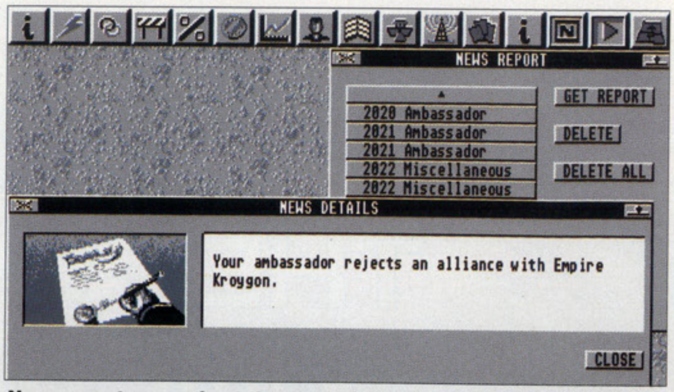
Despite the nice appearance, *The Plague* is nothing more than a run-jump-blast shoot-em-up in the mould of many arcade games circa 1985. Very little has been done to bring the game up to the level of gameplay expected in the Nineties.

GRAPHICS	8
SOUND	4
INTELLECT	2
ADDICTION	4
OVERALL	61%


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PHOTON STORM
A classic space shoot-em-up from the master of addictive arcade classics – action, colour, excitement and mind boggling destruction make Photon Storm the definitive example of manic alien encounter. Patrolling outer space a desperate command suddenly orders you on a mission to seek an alien Battlestar, menacingly forming in a remote universe. Quickly you turn to your scanner and head-up display, desperate to locate the Stargates that will allow you to enter the time warp zones and speed across the galaxies. Instantaneously your attention is drawn to your lazer systems – their awesome power is immediately required – the Battlestar has released fleets of space fighters to halt your progress and return with the plutonium vital to its progress. If your skill lets you down or your nerve fails you in your encounter with the collisions, minetraps and fireballs released by the alien fighters, the Battlestar will grow in strength, activate and unleash hordes of reeking Ferrets that will not only bring to an end your mission, but the future of mankind as well. On with the navigator, out with the blasters and give those homicidal, psychopathic aliens pure hell!!
ATARI ST · AMIGA
Screen shots from various systems.
REACH OUT FOR THE POWER OF ARC
ATARI ST · CBM AMIGA · IBM P.C.
ARC, P.O. Box 555, Slough SL2 5BZ.



There's a large number of subordinates you can call on to run newly-conquered planets, or to head space fleets, but picking the right man for the job requires some thought.



News reports come in at the start of each turn and by reading these you can catch up on galactic events and discover if any of the aliens are becoming a bit too ambitious.

IMPER

ELECTRONIC ARTS £24.99

For some of us, owning the world is just not enough. What we want is the whole galaxy. Fortunately for the rest of the galaxy, none of us will ever be able to achieve our ambition for real so we have to content ourselves with computer simulations.

Imperium is one such simulation, allowing a player to take command of an imaginary galactic power based on a planet called Earth (now there's someone using their imagination!) and, by skilful use of diplomacy, economics and military might, conquer and populate a small galaxy containing around 30 star systems.

Then again, if you're the more passive type and don't go in for this glory lark you can always try to win by just keeping your empire going and survive as leader for 1,000 years. How long! Yup, 1,000 years. Achieving that, though, will still require careful juggling of your empire and skilful manipulation of the other galactic inhabitants – the aliens.

Several other computer-controlled empires are also trying to expand their horizons and do much the same as you (though they're much more into conquering things rather than keeping their tentacles to themselves).

The game is completely menu-controlled, so all your decisions are made by selecting icons at the top of the screen which cause menus to appear. Then you can make decisions on what to do from the menus. The game is played in yearly cycles (the number of years being user defined), then once you've done enough for one year you simply click on 'next turn' and the game advances.

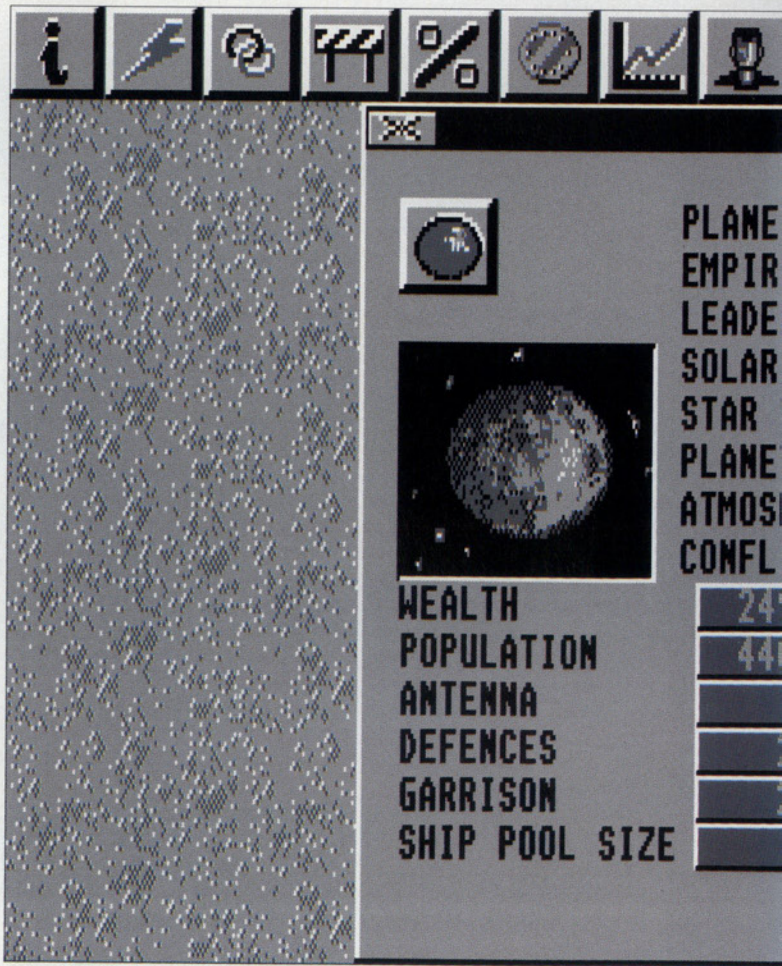
So what keeps you playing? Why not just skip a number of years and outlast the game? For a start, no-one lives for 1,000 years without taking steady quantities of the life-preserving drug Nostrum. Nostrum can be found throughout the galaxy and can be refined from the planets on which it occurs. Taken in moderate doses it enables you and your subordinates to remain alive for a lot longer.

Of course, you first have to find the stuff, so you have to start thinking about moving beyond your own star system. And this is where you come to the crux of the game – economics. Money has to be generated through developing your planets, producing commodities (over 20 of them) which you can use to build ships or use to trade with the aliens. You can also buy things you can't produce from the aliens and to make things interesting you can set import and export taxes, put trade embargoes on certain items and all manner of other things.

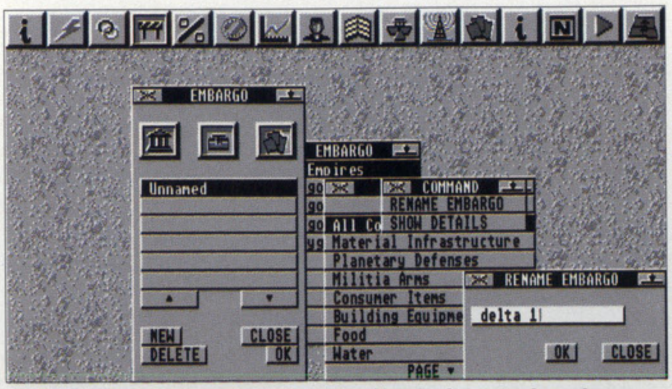
Colonising other planets not only expands your empire, but also makes you popular with the electorate who go to the polls every 50 years to decide on the next leader (if it's not you, then it's game over). And as all good politicians know, money talks. A good deal of cash has to be stored as the years go past which can be called upon when you come to campaign for re-election.

There are loads of planets to discover and dealing with the aliens can be a very tricky business. Keep things ticking over, let the computer handle the economics and/or the diplomacy to start with while you concentrate on the military side of things until you become familiar with the game and gradually start taking things over yourself once you understand just how different things affect the game.

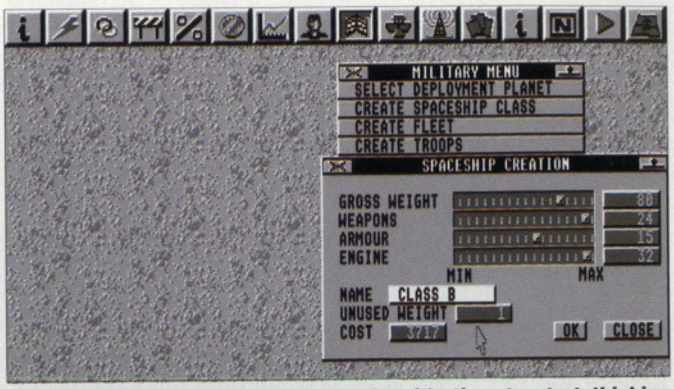
Don't be afraid to experiment, push taxes way up and see how it affects things, start censoring the press and see how it affects your popularity. Play around and after a few games you may find you have just the sort of qualities a galactic leader needs. You may even start calling yourself Emperor Ming... ***Andy 'Not tonight Josephine, I've got an empire to run' Smith***



The planet menu gives you a whole list of statistics for each planet. You can decide whether to help the planet or start creaming off some of its wealth.



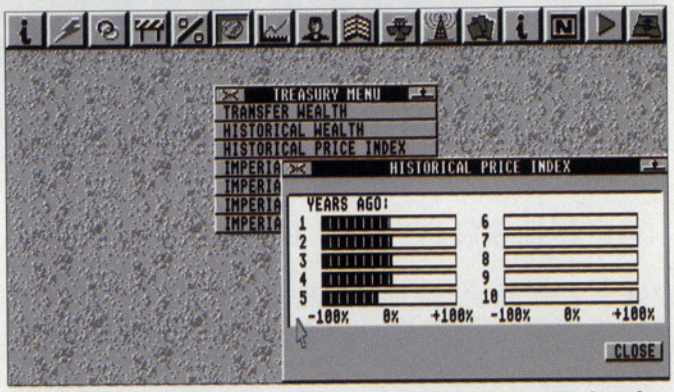
As you can see, doing a simple thing like placing a trade embargo on all commodities to aliens can become quite a complicated matter. Thankfully the system works much easier than the picture suggests.



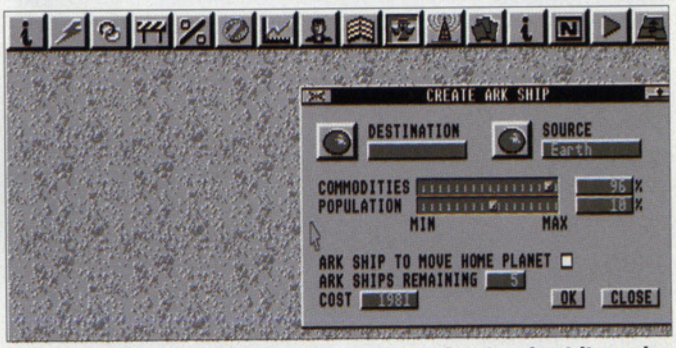
When you've got some money together it's time to start thinking about building up a fleet. Up to 20 spacecraft can be designed. The one above is a heavy attack craft.

IUM

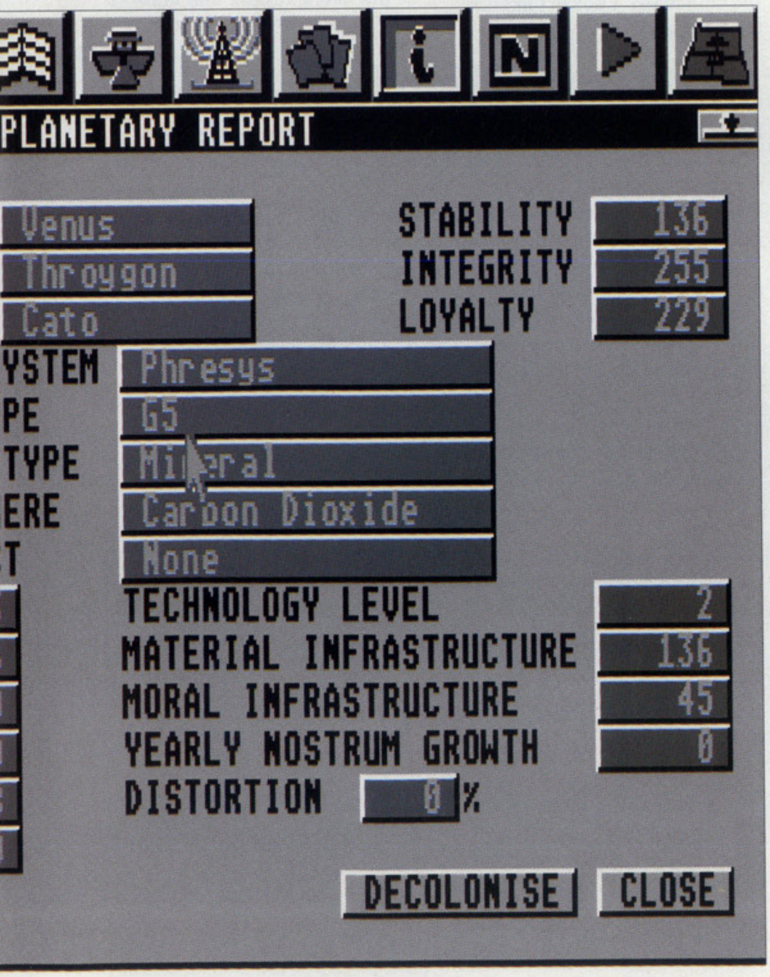
Mouse



A quick look at how the economy has been going for the last few years gives a good indication of how sound your economic policies have been.



Ark Ships are used to shift people to a new planet and get it running for you. Evolution? Who needs it?



GRAPHICS AND SOUND

There are a few sound effects, usually short bursts of music, which are fine but not special. The graphics of the game are also quite reasonable. Bear in mind that this is not meant to be a graphic stunner; it's a thinking person's game. That said, all the menus are nicely presented and are very clear.

LASTING INTEREST

This is the game's strong point. It takes a long while to play a single game and it also requires a lot of concentration, but the nature of the game is such that it's easy to get caught up in the action and spend many an hour at the keyboard without getting bored. It's by no means the first of its type, but it has a lot more depth than some similar games.

JUDGEMENT

Imperium is very well put together and the whole game interlinks with itself intricately, which makes it great fun to play. The aliens are an intelligent bunch, which makes for good interacting opportunities, and it's a game that also rewards smart thinking and punishes rash or ill thought out actions. Definitely a game for the solo player who likes reams of statistics to ponder over and who likes to juggle limited resources making them work to their best advantage.

GRAPHICS	6
SOUND	4
INTELLECT	7
ADDICTION	7
OVERALL	86%



Half past five on the 22nd and the Zulus make their first attack on the south wall. With 18 men on guard the situation is in hand.



The ordering menu. Private No 88 has been ordered to shoot.

LASTING INTEREST

The game takes ages to play, so prepare yourself for some long games – there is a save option. Unfortunately the ability to play only one side and one scenario limits the game's lasting interest because once you've achieved the victory conditions (which shouldn't take a dedicated and competent player too long) it's doubtful you'll want to go through the whole thing all over again.

RORKE'S DRIFT

IMPRESSIONS £19.99 ■ Mouse



After every shot a report tells you if you hit or missed the target (corpses are instantly removed from the battlefield).

Most computer wargames are based on the board wargame principle, with the computer handling all the mundane tasks and getting rid of the need for all those precariously-balanced cardboard counters.

There is another school of wargamers, though: the miniature wargamers. No, they're not really terribly small people; they're so called because they fight wargames on large table-tops using miniature soldiers to represent the forces of the battle. *Rorke's Drift* is Impression's attempt at recreating a table-top wargame on a computer.

If you're unfamiliar with the scenario (surely you must have seen the Stanley Baker movie *Zulu*?) it's the battle between 137 British soldiers and about 4,000 Zulu warriors during the period January 22-23 1879. The British are camped at a small group of buildings and have secured the area with biscuit boxes and mealie bags. As the commander of the British forces it's up to you to hold out against massive odds.

The game is played in two phases: orders and combat. Both are time based (in game time, that is). In the attempt to keep the game feeling as much like a table-top game as possible the ordering system means you have complete control of each and every man. That includes deciding the facing position of the man, whether he should walk, run or charge to a certain place, when to load and aim his rifle and when to rest.

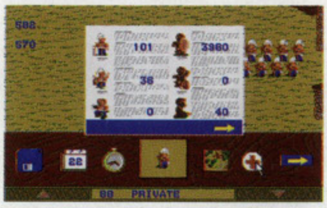
Orders are issued to each man (there is a repeat order option which comes in handy when ordering a large number of men to do the same thing) and then by selecting exit you enter the battle mode and each man follows his orders until either they fulfil them or you interrupt and re-issue orders again.

Controlling the play is the game clock. During the orders phase, the game clock stops and as soon as you enter battle mode the clock starts again. The victory conditions are simple enough – the British commander just has to survive through to the next day.

As the game progresses, survival involves re-issuing ammunition to your men, using the medics to tend to the wounded and various other ancillary operations. With the odds stacked against you the simple fact that you have rifles and the Zulu's don't is not going to save your skin. The ability to use your limited forces to their greatest advantage is of paramount importance. ***Andy Smith***

GRAPHICS AND SOUND

Forget the sound; there's only a short burst of Men of Harlech at the start and that's your lot. The graphics are much better using a good, if forced, 3D perspective. All the characters are well drawn and though the animation isn't the smoothest it doesn't impede the gameplay.



The report screen keeps a total of the sides' losses and injuries. Things look OK for the Brits.

JUDGEMENT

Impressions have really stuck to the rules in order to get this as much like a table-top game as possible. This doesn't always work to it's advantage. The ordering system is unwieldy and awkward and can be very frustrating – it's so annoying to watch two soldiers walk into each other to reach different objectives and then both just keep colliding with each other until you interrupt and send them different ways.

Simple problems like this mean you often have to adopt unrealistic ordering sequences which just makes things unnecessarily tedious. It's tedious enough when you have to fire every man's rifle for him (especially when you have a line of 100 men and have to pick the target and fire for each one, every single time). It's the sum total of all these niggles that break the game and turn it into more of a chore than a pleasure for the average player.

Miniature fans and wargamers with a particular liking for the scenario only need apply for this one.



The north wall. Things are hotting up as the Zulus start sending larger waves against the British.

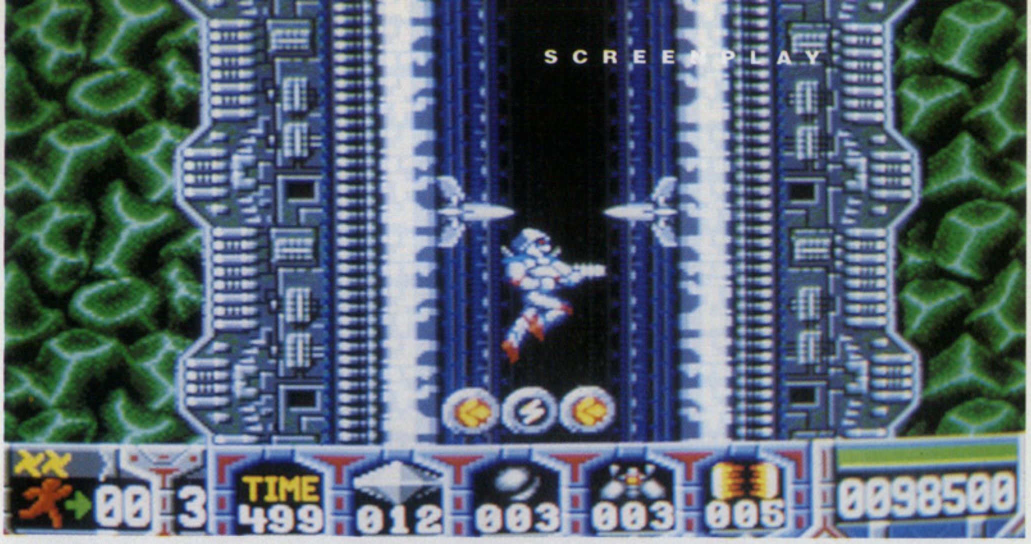


The game area. Arrows indicate areas where the action's at.

GRAPHICS	7
SOUND	2
INTELLECT	6
ADDICTION	5
OVERALL	62%



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Screen shots from various systems.
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Collect the extra power ups as you drop into the complex.

GRAPHICS AND SOUND

Turrican's appearance is very much in the mould of many coin-op machines. The graphics are colourful, smoothly animated and atmospheric and the sound backs the gameplay up superbly with a range of powerful effects. Even the music has been done well, using real chords – a point not often apparent in game soundtracks. In fact *Turrican* could well be an arcade game – except you don't have to put money in all the time!

TURRICAN

RAINBOW ARTS £19.95 ■ Joystick

Everyone has nightmares at some time. But where do they come from? Legend tells of a creature with a highly-developed psyche, due to his three-headed mutant form. His influence was so powerful that everyone on Earth was touched by his evil thoughts. The human race was gripped with fear and worry and terrible nightmares made the dark a cold and frightening place. This creature was named Morgul.

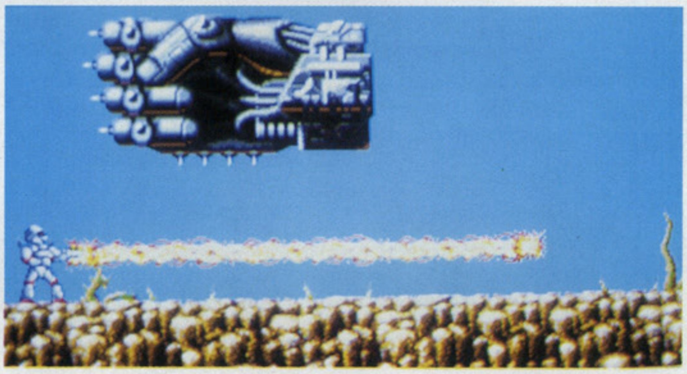
A heroic warrior named Devolon managed to battle him and banish him to a hidden dimension inhabited by strange creatures incapable of emotion and therefore immune to the fears and dreams he instilled in mankind. Years have passed since this age, with humans still occasionally troubled by nightmares and worry. Even though Morgul has been trapped, his influence still breaks through.

However, mankind has once again begun to experience horrific dreams, worse than ever before. No-one will venture out onto the streets during the hours of darkness. One terrifying thought is lurking at the back of everyone's mind – Morgul has returned.

You are Turrican – one of the few remaining people who have not lost all sense of courage. You have been kitted out with the latest state-of-the-art firepower ready for the mission ahead – to find Morgul and kill him.

You must travel through five areas of the realm that Morgul has created for himself, fighting off the creatures that he has warped to obey him. To begin with you are armed with a rapid-firing pulse rifle and a flash-beam which can project a directable stream of lightning to take out enemies at a distance. Extra energy packs can be picked up around Morgul's fortress and converted into weapons such as lasers, spray rifle packs and energy shields. Some are freely available, but others are hidden and have to be carefully searched out before they can be collected.

At the end of the last area is the evil Morgul. Can you use the weaponry available to destroy him? Who knows… but it could give you dreams for a while! ***Maff Evans***



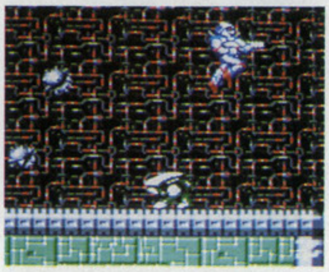
This one is a well mean mother. Get the beam on him!



Ooh, look at all those lovely diamonds. Give them here...

LASTING INTEREST

The feel of the weapons is easy to get to grips with and to begin with it's fairly easy to blast the living daylights out of all the attacking creatures. Things do get a lot tougher though, despite the extra pick-ups to help you on your way. A lot of playing practice will have to be put in before you get any distance into the game and it will be quite a while before all the levels have been conquered.



Turrican is pursued by bouncing bombs as he jumps a robot.

JUDGEMENT

Some people may argue that there are too many shoot-em-ups on the market already, and this would be a fair point. The problem is that a great deal of them are pretty half baked, pale representations of established coin-op machines. However with a game like *Turrican*, not too many people could complain about the addition of another blast to the ever-increasing list. Rather than being a rip-off, *Turrican* could well be in an arcade (in fact don't be surprised to see some of *Turrican*'s ideas finding their way into future coin-ops). The gameplay itself isn't particularly groundbreaking, but it is frantic fun and extremely well presented and should appeal immensely to fans of the old 'spraying bullets' genre.



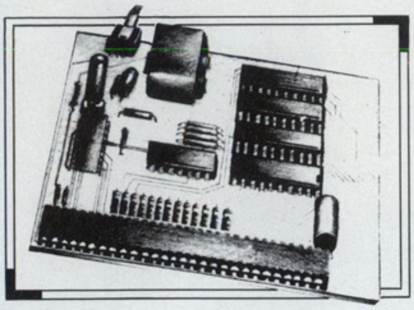
Launch your flash-weapon to kill that evil 'orrible flying robot.

GRAPHICS	8
SOUND	8
INTELLECT	3
ADDICTION	8
OVERALL	88%

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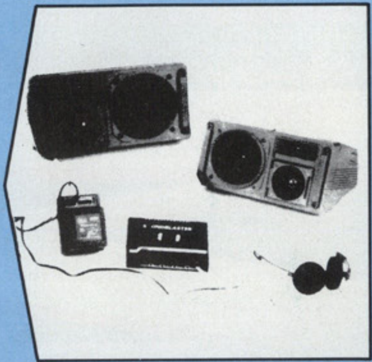
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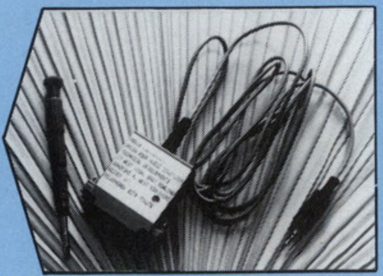
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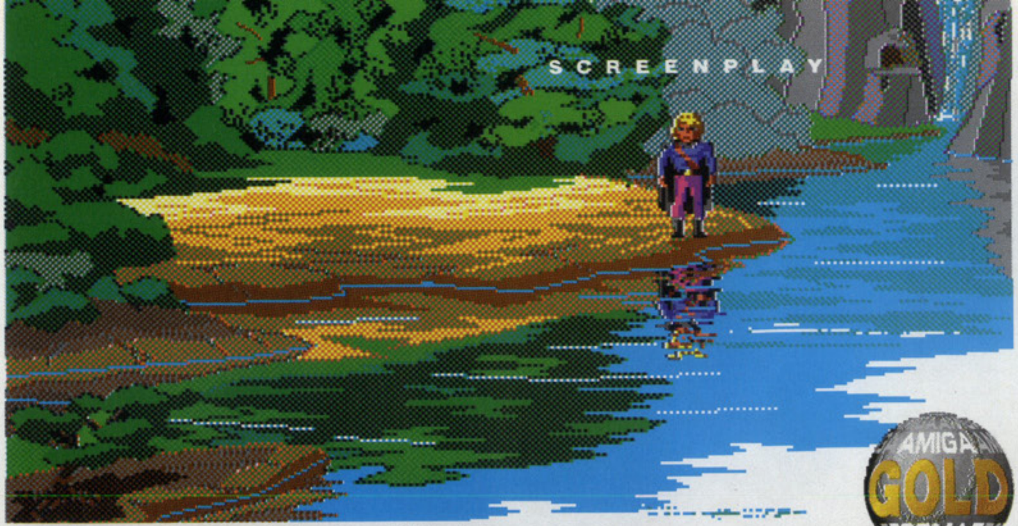
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Reflections on the ethics of chopping up living beings...



The healer can patch you up – but will only do it for a price!

GRAPHICS AND SOUND

The 3D locations look good. It's not just the quality; the number of scenes to explore is enormous. A few more frames of animation, in places, would have been the icing on the cake. Sound is used more subtly, with birds twittering away, a couple of musical themes and the occasional din of battle – bit of a let down there but not enough to make the game less enjoyable.

HERO'S QUEST

SIERRA ONLINE/ACTIVISION £34.99

■ Keyboard and Mouse



Combat is sometimes simply unavoidable, but always fun.



Want information? Check out your local Adventurer's Guild

The people of Spielburg valley need a hero. A true champion of the weak, who is valiant in battle. Reckon you fit the bill?

Hero's Quest begins with a decision as to what sort of hero you want to be. Fighters are stereotypes with broadsword, shield and brain damage. Magic users are the intellectual types – they start off as wimps but build up a decent collection of spells and can swagger with confidence. Thieves are devious, skulking about shadows with a lockpick at the ready...

Rather than your Amiga randomly deciding the character's abilities – strength, intelligence, agility etc – you assign a meagre collection of points onto a standard profile (so fighters are always better than average in close combat, but you can stick some extra points on for overkill). This makes hero design much more satisfying: custom heroes!

Getting into the game is easy. Spielburg is located in Spielburg valley, a large playing area with plenty of spooky woods, caves and inhabitants. You move around the three dimensional on-screen scenery; press the key or move the mouse and your hero stomps off in that direction until an obstacle gets in the way.

Remember text adventure games? The computer gives a description, asks "What now?" and then you type in your responses. *Hero's Quest* lets you type in commands at any time, which freezes anything that's happening on the screen – even combat.

Therefore, you can stroll up to anyone or anything you see and try to start up a conversation. There's no need to hack everything you meet into quivering little lumps, unlike such games as *Bard's Tale*.

Monsters are classified into four categories: the Humanoids, the Inhumanoids, the Undead and the Unknown. The handbook lists a few little pointers that indicate it's a monster you're facing: if it oozes green ichor, eats people, collects half-eaten corpses, drools, gibbers or slavers, attacks without provocation, twitches tentacles or will not eat spinach – it's a monster!

The combat is simple in principle, but difficult to master. A view appears, from over your hero's shoulder. Depending whether the monster is at close range or distance you have six manoeuvres to choose from: thrust, swing, duck, dodge, shield block and parry.

Whenever the pointer symbol on the screen flashes, you must press the relevant key for the action you want. This introduces thought into combat, as you have to see what your opponent is doing before making your move. Blast-em-up fans like to hammer on all the buttons, and get confused when they end up dead. You have to think more about this combat system.

Combat is only a part of the game. At first, the player explores as much as possible, talks to people, meets the odd Dryad (that's a good bit) and can even take a job at a stables. Later, the quests have to be solved, adventures have to be completed – life in Spielburg valley is complicated.

Pat McDonald

LASTING INTEREST

Loads of disk swapping is the only hassle. To see a world come to life is amazing: to play only a part of it and try to overcome all the problems and share the triumphs of becoming a hero is a long-term (and fun) way of spending time. Lots of puzzles, an adrenalin rush when a monster appears and a definite goal are what real adventurers need.



One kill-crazy hero who is just about ready for a quest.

JUDGEMENT

Just to call this a game is inadequate: it's a five-disk work of art, brimming with imagination, humour and thought. Shame about the price, but for once it genuinely reflects the amount of effort that's gone into it. A lovely game.

GRAPHICS	8
SOUND	6
INTELLECT	7
ADDICTION	9
OVERALL	92%



A later level – it looks easy, but one mistake can make the whole thing impossible.

TURN IT



The next level. A toughie this one – things can go very well for a while, but it's easy to get stuck and end up with a small group on the left and a small group on the right.

KINGSOFT/ THE SOFTWARE BUSINESS £19.99 ■ Mouse

All the useful things in the world today were probably invented thousands of years ago by the Chinese – like gunpowder, chopsticks, bicycles and those little water bottles that fix on the side of hamsters' cages. They were also pretty adept at keeping themselves amused during those long, dark nights and invented almost all types of Patience and Solitaire including, erm... well, probably quite a few.

Another game they invented was Mah Jong, normally a two or more player tile game that's a weird cross between Dominoes and Rummy. They even managed to create a game of patience using the Mah Jong tiles – often called *Shanghai* – and *Turn It* is a straightforward variation of that.

Turn It is a much simplified version that involves looking at a screen full of face-up tiles and then selecting identical pairs to remove them from the board. There are a couple of rules, however. First, you have a time limit for each screen (the length of time can be altered by selecting a different skill level at the start of the game).

Then you must remember that the two tiles in a pair must be connected by a line which is drawn along the edge of the playfield and/or across tiles that have already been turned. Life at this stage would be bearable, but what really makes it tough is the rule stating that the line connecting the two tiles to be turned can turn no more that twice (every turn of the line is through 90 degrees).

There are 50 levels to the game (a password is given after every 10 levels) and the levels increase in difficulty in a variety of ways. Usually the number and the complexity of the tiles increases, so you have more to manoeuvre around, but sometimes you're up against a crippling time limit. There are occasional pairs that can either be a help or a hindrance once they're turned, like the diamond tiles that give you an extra 10 seconds or the skulls that deduct points if you do have to turn them. **Andy Smith**

GRAPHICS AND SOUND

Neither is outstanding, though the music is all right and the sound effects are fine. The tiles have all been well drawn and everything looks about as good as you would expect.

LASTING INTEREST

The difficulty tuning on the screens has been set well and with 50 levels to complete this will keep you going for some time. The only disadvantage is that once you know a level you'll complete it every time.

JUDGEMENT

A very nice game that's been well done and will entertain whenever you have a few minutes to yourself. This is a good variation of the classic, so if you don't own at least one already this is as worthy of consideration as the rest.

GRAPHICS	6
SOUND	4
INTELLECT	6
ADDICTION	7
OVERALL	83%

THE ALL-IMPORTANT PATTERN OF PLAY



The easy first level. The tiles are simple and it's easy to recognise pairs.



Things are going well and here's another pair of tiles to turn – just click with the left button.



Near the end of this layout, now. Just turn this pair of faces for an extra four points.



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The brave Earth Commando takes a plunge back in time through the warp tunnel

TIME SOLDIER

ELECTROCOIN £24.99 ■ Joystick

The Earth is in danger. The seven Earth Commandos responsible for the protection of the planet have been captured on a mission to attack the evil Gylend. Five of the Commandos have been enslaved and sent into the voids of time with little hope of rescue.

Only two of the commandos survived – Yohan and Ben – who must now battle through various time zones, from the Primitive Era through Medieval Japan to Future World, fighting off all manner of historic creatures and warriors in an attempt to rescue their captured comrades. All the commandos must be freed before they can travel to Gylend's domain and put the tyrant to rest once and for all.

You control one of the Commandos on his perilous quest through time, starting off with a limited energy supply and a measly single-shot weapon.

Along the way you may find additional items such as speed-up devices, three-way cannons, missile launchers and laser weapons. You must use these items to blast your way through Gylend's defences and rescue your friends. But take care, since once your energy runs out it's time for you to disappear off to the great big time machine in the sky.

Maff Evans

GRAPHICS	4
SOUND	3
INTELLECT	1
ADDICTION	3
OVERALL	49%



Gladiators come marching down to attack you when your guns are at their least powerful.



Let those Romans have it while their backs are turned and they present their 'vulnerable' side.



Don't stop to admire that pretty floor, because this dragon is a tough opponent!

GRAPHICS AND SOUND

Despite being based on a well-presented coin-op, the Amiga version of *Time Soldier* is rather unimpressive in both graphics and sound departments. The scrolling is slow, the sprites small and scrappily animated and the sound is weak to say the least. If an arcade conversion is to be a hit nowadays, these are the things that most care has to be taken over, but Electrocoin have simply 'made do' with a rough interpretaion of the original.

LASTING INTEREST

From the outset *Time Soldier* is a difficult and frustrating game to play, but even if you do manage to get any significant distance into the game, the gameplay doesn't alter to any extent. This goes to make a game which is annoying and repetitive, which will undoubtedly cause even the most dedicated coin-op fans to give up in short order.

JUDGEMENT

Time Soldier seems to be a throwback to the days when coin-op conversions first began to appear on home computers. Fans would simply go out and buy the game just for the name, regardless of the quality. However in this day and age of superb graphics, first-rate conversions and brilliant original games, a real effort has to be made to ensure that the translation stands up well as a game in its own right. Unfortunately *Time Soldier* doesn't really manage this, seeming much like a case of "let's get the name out, quick". Even if you are a fan of the original don't leap straight in, because this is a below-par implementation of a rather forgettable coin-op.

GRID RUNNER

LLAMASOFT £10.95 ■ Mouse



Psychedelic mayhem in Minter's latest blast-em-up.

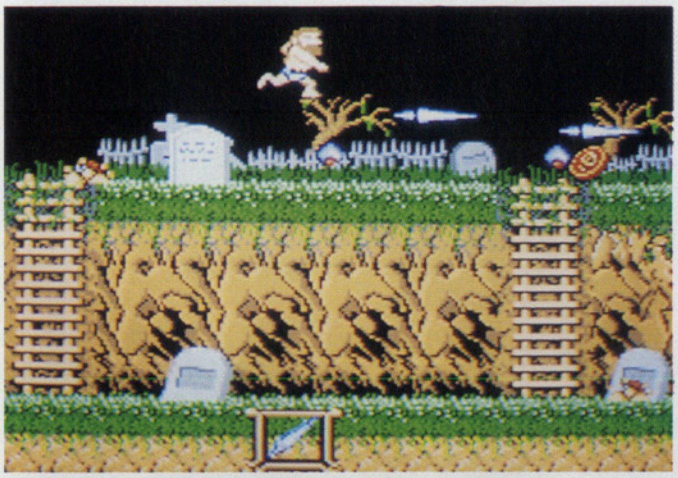
Anybody who missed out on Jeff Minter's 'alternative' games on 8-bit can try his psychedelic delights in *Grid Runner*.

The idea of the game is simple; you control a ship with detachable nose-cone. Holding down the right button drags the nose-cone around, otherwise it sits where it is and splits your shots into three bullets, dealing mayhem to swooping invaders. And what do you have to do? Avoid the railgun's shots from the sides of the grid, pick up the bonus tokens and blast the Bejesus out of everything else. Simple.

The flashing, cycling and pulsating psychedelic colours are the main feature of most, if not all, of Jeff's games and indeed *Grid Runner* has cycling and pulsating colours at every opportunity. The effect is pretty – if a little disorientating – and provide a suitably ethereal backdrop to the gameplay.

The action itself is fast and frantic, so despite its age *Grid Runner* provides an enjoyable couple of days' blasting. The only fault is the sound. There is no music to speak of, and the effects are just obligatory beeps, whizzes and crunches. Not too good considering the power of the machine. Whinge aside, the game is – as pop hero Alan Freeman would say – 'A classic blast from the past, pop-pickers!' *Maff Evans*

GRAPHICS 5 / SOUND 3 / INTELLECT 2 / ADDICTION 6 / OVERALL 71%


Killing these monsters is easy! YIKES! Where's me trousers?

GRAPHICS AND SOUND

Given the time that Elite had to bring out this conversion, it's not surprising that the game is extremely close to the arcade original. In fact the only difference is that you aren't asked to put any money in! All the introduction and intermission scenes have been included, from the abduction of Sir Arthur's love to the map of the game before play. One thing that was missing from previous conversions was the grave spirit that emerges to turn Arthur into a frog, but a few blasts into a gravestone on the Amiga version and hey presto! Out comes the spirit! A lot of care has been taken over both sound and graphics to recreate the feel of the coin-op, and it certainly shows. Both are superb.

LASTING INTEREST

Anyone who has played the arcade version to any extent will be able to quite easily get into the action, but this also means that they may complete it fairly quickly. However, even if you do get to the end, it's still great fun to pick up and have a bash at every now and then.

GHOSTS 'N' GOBLINS

ELITE £19.99 ■ Joystick

After the success of US Gold's *Ghouls 'N' Ghosts* conversion, which received a Format Gold in these hallowed pages, it was inevitable that its predecessor would make its way to the 16-bit machines.

For the six people that have just landed from Mars and don't know anything about the game, the plot tells of brave Sir Arthur, valiant knight and bold warrior. While resting with his girlfriend after a paticularly tough quest, an evil demon swooped down and swept away the fair maid to a dark and dangerous hiding place deep within a mountain.

Arthur quickly dons his magic armour and sets off to the rescue, passing through the various creature-infested sections of the demonic realm. He must fight off zombies in the graveyard, ghostly flying monks in the forest, tattooed ogres in the ghost town and bats in the caves.

Initially Arthur is armed with an endless supply of sawn-off lances to throw at foes, but occasionally a creature carries a pot containing treasure or new weapons, such as torches, axes or daggers. If one of the creatures manages to land a hit on poor Sir Arthur he will lose the protection of his magic armour – one more hit and the brave hero turns into a bag of bones for the vultures to pick at. ***Maff Evans***


The map shows your objective – the demon's castle!


That's a very strange creature. I wonder what he does...

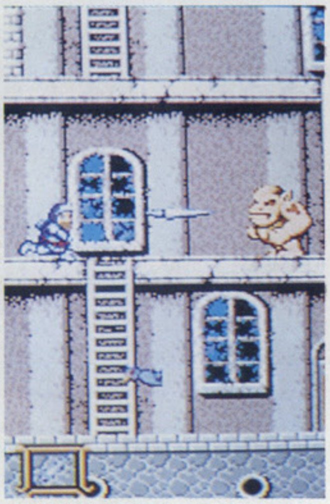

Ah! That's what he does. Oh well... gribbit, gribbit.

JUDGEMENT

Despite its age, *Ghosts 'N' Goblins* is well presented, highly playable and an enjoyable romp. Technosnobs shouldn't be put off simply because the follow-up is available, since the prequel has a feel and charm that *Ghouls 'N' Ghosts* somehow lacks. Veterans of the coin-op should get hold of a copy, even if it's just for nostalgia's sake, and newcomers to the tales of Arthur and his foes could do a lot worse than take a brief visit to this weird and wonderful world.

GRAPHICS	8
SOUND	7
INTELLECT	2
ADDICTION	7
OVERALL	80%


Arthur is chased around in his underwear by ghostly monks.


Arthur gets his tin trews back.





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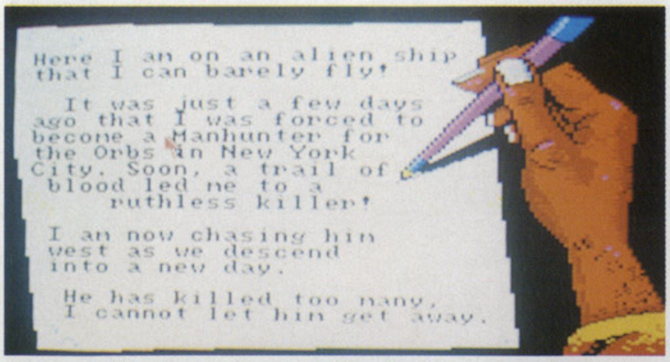
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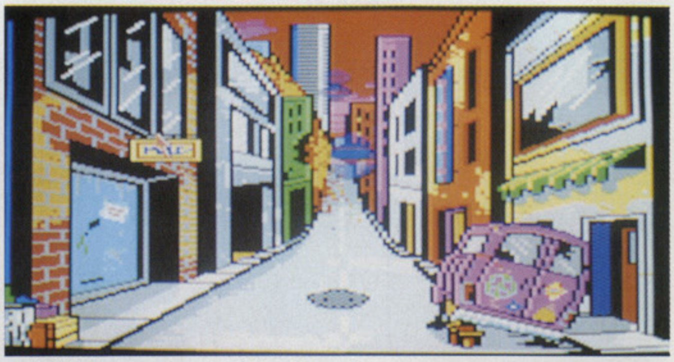
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The start of the search. Forced by the Orbs to become a Manhunter, you set off into the streets of San Francisco.

MANHUNTER 2



Is it a good idea to peer under the pier while strange dudes in wierd duds are strolling around?

SIERRA ON-LINE/ACTIVISION £29.99

■ Mouse/Keys

It was one of those days. One minute you're minding your own business and the next, your home town is invaded by aliens. Everyone is forced into wearing rather fetching brown robes and you're offered the chance to be a Manhunter: an 'esteemed human'. As such, your aim in life is simple: find the villains, then kill them. What more could one ask?

Manhunter 2 – San Francisco begins where *Manhunter – New York* left off. You're on the hunt for a human murderer called Phil who has escaped into the heart of San Fransisco. So your task is set. Unfortunately this task isn't as simple as it first seems. The more you investigate the more you uncover, from Genetic Engineering to major corruption, and your initial plans are changed as a more comprehensive understanding of the situation develops.



It's hot out on those streets.

One of the most impressive options of the game is the use of a personal computer to track city occupants, a nice touch which lets the player get more into the game via a realistic street map. The game is totally mouse-operated – there is absolutely no need to type in anything – but keyboard control of the arcade sequences and quick decisions can be made via function keys.

An interesting feature of the game is the inclusion of 'exciting arcade sequences'. Unfortunately, this adventurous gambit hasn't really come off. You are offered three skill levels which are tantamount to the same, with little if any difference. One such sequence near the beginning of the game is just about impossible. The aim is to get through the tunnel by kicking rats and punching bats – which would be quite a pleasant break from wandering the streets, but the slow keyboard responses and the random nature of any attack lowers the chance of survival to around zero.

Of course you'll persist, against your better judgement, just to get into the game somehow. Toughness based on luck rather than skill really does rile you, especially when you wish to get into the game proper rather than pussy-foot around in some amateurish arcade sequence.

Nick Walkland



Looking for clues...



Do you *really* want that flask?

GRAPHICS AND SOUND

Graphically *Manhunter 2* is adequate, although the images are often rather crude and basic; the staggered and gaudy coloured graphics are more reminiscent of early Commodore 64 software than a game for the Amiga in the Nineties. The animation is tediously slow and jerky, so they become something to endure rather than enjoy.

Sound effects and music are best left unmentioned, which should give an idea of their quality. You can always turn it off. All of which is disappointing from a software house that was getting much better at effects.

JUDGEMENT

All-in-all *Manhunter 2* is a letdown. Especially after the success of *Manhunter* in the States, you'd expect something better. The adventure has so much potential, and it does have quite a gripping storyline – but the slow gameplay holds it back.

Big problem is the arcade games. Frankly, these are no joke. I'm sorry, but I haven't played such poor arcade games since *BASIC Invaders*! Why they bothered with the arcade parts of the game, when all they do is distract and irritate, is beyond me. Experimenting too much into mixing various forms of games, Sierra have got themselves swamped – lets hope they can pull themselves out and produce more of the games for which they are rightly famous.

GRAPHICS	5
SOUND	2
INTELLECT	7
ADDICTION	4
OVERALL	54%

LASTING INTEREST

***Manhunter 2* can be quite thrilling, especially thanks to its macabre style and relatively witty presentation. Unfortunately the puzzles are either blatant or painfully awkward, a constantly recurring problem being that you find objects without getting full details on what they are. This may be fine every now and again, but when it crops up with almost all objects throughout the game it does become a pain.**

An adventure which decides the route for you and shows you the scenes it wants you to play hardly inspires any particular interest. However, once you get the feel of the thing the atmosphere rises, and you can begin to enjoy yourself. The game then presents its main problem; the sheer stop and start quality, with hardly any smooth flow.



"Armed guards alone aren't enough to stop the Defenders of the Earth!" Bigmouth strikes again just as the hover guards swoop in for the kill.

DEFENDERS OF THE EARTH

ENIGMA VARIATIONS £19.99 ■ Joystick

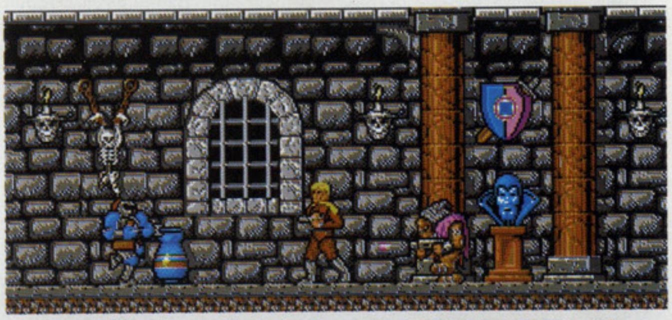
If you're the kind of person that never sees Saturday mornings, never mind Saturday morning television, then you may not have caught the 'all-new' *Flash Gordon* adventures in the form of *Defenders of the Earth*. It's the usual American cartoon tat, with 'classic' heroes teaming up with a bunch of right-on youngsters amid a hail of spaceships and laser-blasts, as the evil villain attempts to take over the world.

In Enigma Variations' new computer implementation of the cartoon you play Flash himself, romping through Ming the Merciless's fortress fighting off his minions until the evil ruler is tracked down in the Throne Room.

Flash starts out armed with four shield-packs and an automatic weapon. Hits from guards and other defence systems reduce Flash's shield strength, but extra energy packs can be picked up along the way to top up the diminishing supply. Also scattered around the fortress are extra weapons, such as laser blasters and high-speed magazines.

At various points, Flash may come across an obstacle such as a gap in the floor, a locked door or an electric field. By activating a call signal, Flash can ask one of the other Defenders to help him pass the obstacle – for example, Mandrake can magically create bridges, the Phantom can kick doors and Lothar can break locks.

If all Flash's energy packs run out, Dynak-X transports him back to safety all ready to go back and fight another time. ***Maff Evans***



Watch out! That humpety-backed guard's coming to sort you out.



Attack of the blue robots! That evil snake doesn't help, either.

GRAPHICS AND SOUND

The intro music to *Defenders of the Earth* has been faithfully converted to the Amiga: in other words, the game's theme is the usual tacky Saturday matinee 'anthem' that kids can sing as they leap around re-enacting their favourite characters' antics. The graphics have a colourful cartoon-like appearance, but the animation on all characters is simplistic to say the least. This is one of the most important things to consider when converting a cartoon to computer, but Enigma Variations' design unfortunately doesn't quite capture the feel of an action cartoon.



He looks nasty. Should have taken more care on the terminal!



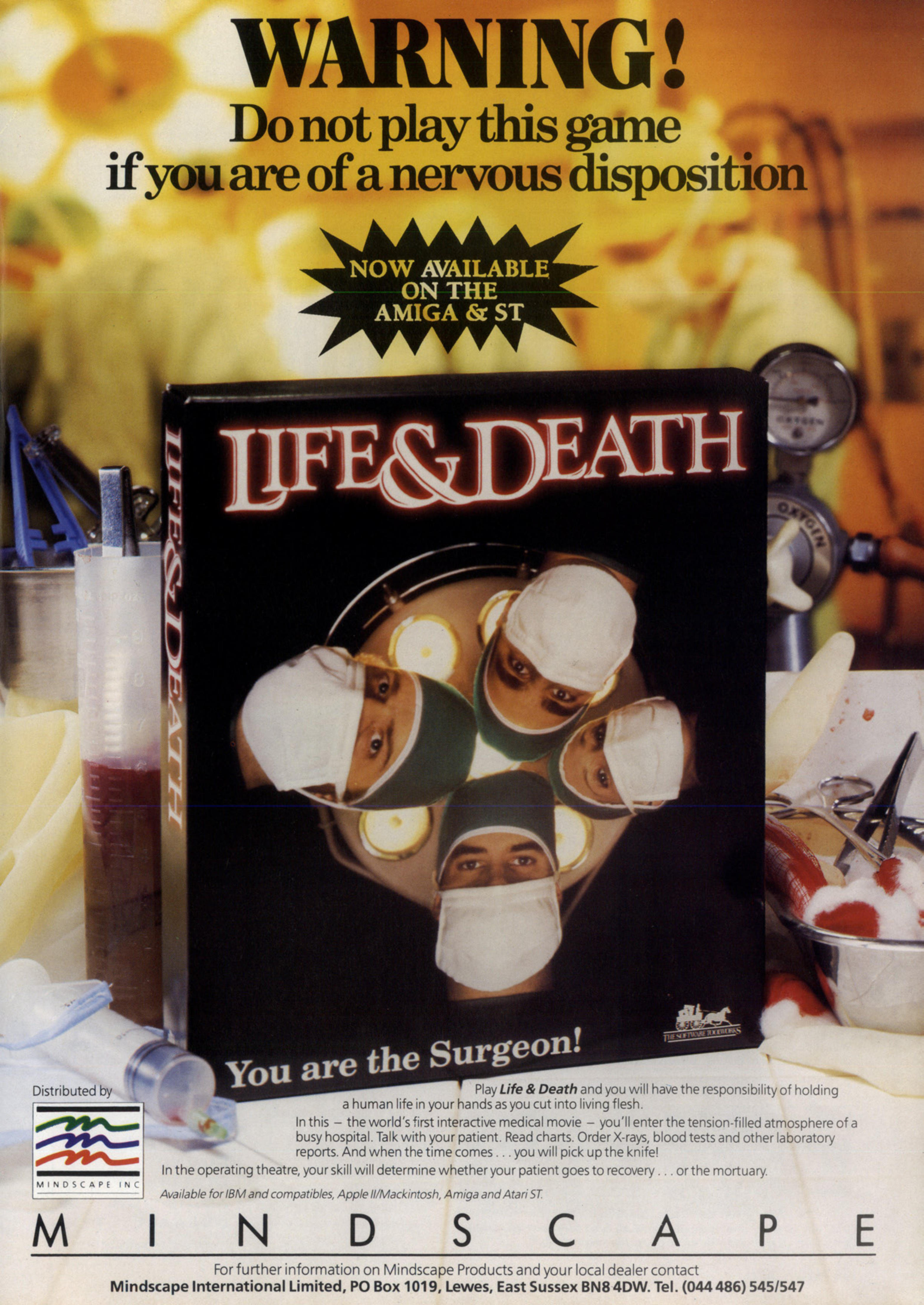
LASTING INTEREST

The gameplay is fairly basic, and each level is pretty similar to the last with the exception of a few more robots and guards to encounter. To add to this, the going is frustratingly difficult, which will have even dedicated shoot-em-up fans turning the air blue with profanities and threatening dangerous (and probably illegal) action against the computer before throwing the joystick down and leaving the room.

JUDGEMENT

It's rather poetic that such a run-of-the-mill cartoon has been turned into a run-of-the-mill shoot-em-up. The graphics and sound do the job, but the gameplay, unfortunately, is lacking in originality, excitement and variety – all things that a shoot-em-up needs to be impressive in the Nineties. It's fun for a couple of games, but frustration sets in soon after, discouraging budding Defenders from struggling through, no matter how big a threat Ming is to the universe.

GRAPHICS	7
SOUND	4
INTELLECT	2
ADDICTION	4
OVERALL	58%


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Now's the time to put your knight on king 5 where your mouth is. The ability to test your grading is a definite challenge in itself.

LASTING INTEREST

It's chess innit? Lasting interest? There's thousands of years of it, bit of a silly question really. As for the software, the options to keep your own booked openings, continually assess your grading and the different levels which are included should make *Chess Champion 2175* last until the next version comes along. The fact that it can be moulded to your tastes and playing ability (though not yet to your style or imagination) gives it a fair edge over challengers in the micro-chip Kasparov stakes. Unless you're Nigel Short or plain irritatingly good then *Chess Champion* will keep doing no end of good for your game for a long time to come.

CHESS CHAMPION 2175

OXFORD SOFTWORKS £29.95 ■ Mouse

Put an Ottoman Emperor and a Russian (or Georgian or Lithuanian) peasant in the same room and they wouldn't know how to communicate. Then introduce a chessboard and – bingo! – they will be on the same wavelength for as long as you let them play. That's one of the beauties of chess. In this country, the game has had a 'snob intellectual' value attached to it; this is slowly being broken down and one of the prime movers in this noble war of attrition is the home computer chess game.

Chess Champ comes with all the standards which we have come to expect; a 3-D board, "take back' moves, booked openings and saved games. Unlike its predecessor, Chess Champion 2150, little brother comes with no speech support. The reason for this is that a bigger opening libraryhas been added, the search extended and a 'Chess Engine' – the brains behind the beast – of 100k incorporated.

Once booted up – for some reason the screen shows a 2-D board where the pieces change into toys and animals, but at least it keeps you interested – you have to negotiate the 'what does word 123 in paragraph 23 on page 2' protection. Then you are taken straight to the flat board display with the clocks ticking. Default games have you playing white. Click on the left mouse button, with the pointer off the board, and a series of menu options are shown at the top of the screen.

Before getting into a game, it's an idea to test your grade. This function gives you 24 set-pieces to negotiate. Once you've completed the lot you are given a rough idea of your place in the international pantheon of chess players. Nice idea, but it can be a tad punishing on the ego.

Just because you are defaulted to play white, doesn't mean it has to be that way. As with all computer chess it is a wise idea to suss the machine's ability to play white and – this is normally a good one – see how it reacts to castleing Queen-side. Chess Champ' copes well with both options with some style, an attribute sadly lacking in a number of other games. Attempting to stuff it with a Queen/knight check was also handled with great aplomb – that normally nails 'em too.

One impressive point about the game, although it smacked of playing a crusty old pro trying to impress by dropping in chess technicalities – is that names of openings are displayed on screen as soon as the software recognises them. Queen's Gambit slaps on the screen early, but such lovelies as the Nimzo'-Indian Defence take their time – and rightly so. It plays like a crusty old pro' as well: more's the pity for the chess smart-arse or naive beginner

Tim Smith



Get out of that you computer pretender...it probably will 'un all



Where to go from here? The knight's are drawing in or what!

GRAPHICS AND SOUND

We'll get the sound question over with right now. Save for the occasional bleep to signify a move, there isn't any. A good thing too, the last thing you want when training to win a £10 bet with 'Arry the chess shark down at the Rook and Ferret, is Adamski-International-Beat'S'Express blaring out to announce a check.

Graphically, it's a little on the ragged side. This is probably because looks are sacrificed to playability, another good point in my mind. Movement comes with a number of options which range from an irritating 'slide' to a zappy 'Fast Move' variation.

You do get the chance to alter the board and piece colours, so why quibble. The real chess afficionado will have a true board to hand anyway – you can't really play chess without some tactile sense. Basically the job is done in an unintrusive manner. Oh, and if anyone ever does make use if the 3-D option, that's fairly mean too.



Before 'pawning off' (an internationally unrecoginised term for starting a game) you should make use of the numerous pull-down menus

JUDGEMENT

Until a computer chess partner comes along which can bring hypnotists, telepaths and rowdy fan club members to freak you out ; until the Amiga develops the ability to chuck the pieces across the screen in a fit of pique when it loses and then blame the loss on the weather or FIDE, it'll be nothing to beat human contact. However, *Chess Champion* stands up well and provides and excellent game for beginner and experienced amateur alike. It comes with a 300,000 byte library, is obviously well thought out and enthusiastically programmed and all this makes it almost a pleasure to be beaten by it. It's definitely a pleasure to beat it.

GRAPHICS	5
SOUND	N/A
INTELLECT	9
ADDICTION	7
OVERALL	77%

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The exit! Now where's the key? Oh no! Back to the start.

LASTING INTEREST

Each screen of *Fire and Brimstone* is a puzzle in itself, requiring thought and dexterity to complete. Reaching the end of the level is one thing, but successfully finding all the sections of the key and escaping is another matter. Fail and it's back to the beginning again. Spread this over nine worlds and you have weeks of compulsive and addictive playing ahead.

FIRE AND BRIMSTONE

MICROPROSE £24.99 ■ Joystick

Electronic Arts gave a hint of what it might be like to act as a deity with their God-simulator *Populous*, but what of the hellfire and mayhem that the Norse gods enjoyed? Microprose have stepped in to allow you to enter the raucous and violent world of Thor, God of thunder, law and order – a strange combination, but in legend anything can happen.

The land of the Norse gods consists of nine realms – from the worlds of Asgard, home of the gods, through Midgard (our Earth) to the dark realms of Muspell, home of the Dark Elves. Deeper down than this abominable world is Niflheim, home of the evil goddess Hel, controller of all the world's most evil monsters.

For generations Hel has been a nuisance, causing mayhem and disorder in the lower realms, but recently her powers have been spreading further and further afield. The people of Midgard are being made to suffer at the hands of her demons as she grasps for more and more power. The gods have decided – it must stop.

You take the role of Thor in his quest as nominated adventurer in the battle to defeat Hel. Your quest begins in Alfheim, where witches and ogres under the power of Hel will attack you. To gain access to Vanaheim, and thence the other levels, you must find the sections of key that Hel has hidden in an attempt to protect herself. Once the key is complete you can battle through the realm until you reach the exit, which is on the right-hand side.

Hel likes nothing more than a battle, so to taunt Thor she has placed magic potion bottles throughout the realm which are uncovered by killing various creatures on your path. Spells such as lightning and bridge-building will come in useful when the odds looked stacked against you. If you fight well enough, you will reach the realm of Niflheim, where Hel herself is waiting. ***Maff Evans***



Oooh! Ah! Hee! Ouch! That's a tad on the warm side!

GRAPHICS AND SOUND

The graphics are very colourful, and have been designed with tongue firmly in cheek. Thor, instead of being a huge strapping warrior, is a dinky little fellow with a bright red beard! The other creatures have a similarly cute appearance, and combined with the detailed and atmospheric scenery give the game a very polished appearance. The sound is of a slightly lower standard, however – consisting of a racy, but inappropriate tune and a few thin and weak spot effects. Where are the grunts of battle and the cataclysmic sound of magic spell being cast? Not here, I'm afraid.



There's a piece of key. Oops! An ogre. I wonder if he's seen Thor...

JUDGEMENT

Capcom's *Ghosts 'n' Goblins* made it credible to portray mystical worlds in a 'cute' manner without being laughed out of the software market. *Fire and Brimstone* follows this structure well, managing to recreate the feel of Capcom's classic but without ripping off the game so that it can be dismissed out of hand as a simple arcade clone. Thor's quests are portrayed in an amusing and enjoyable way that should appeal greatly to those with a love for the mystical and a sense of humour.

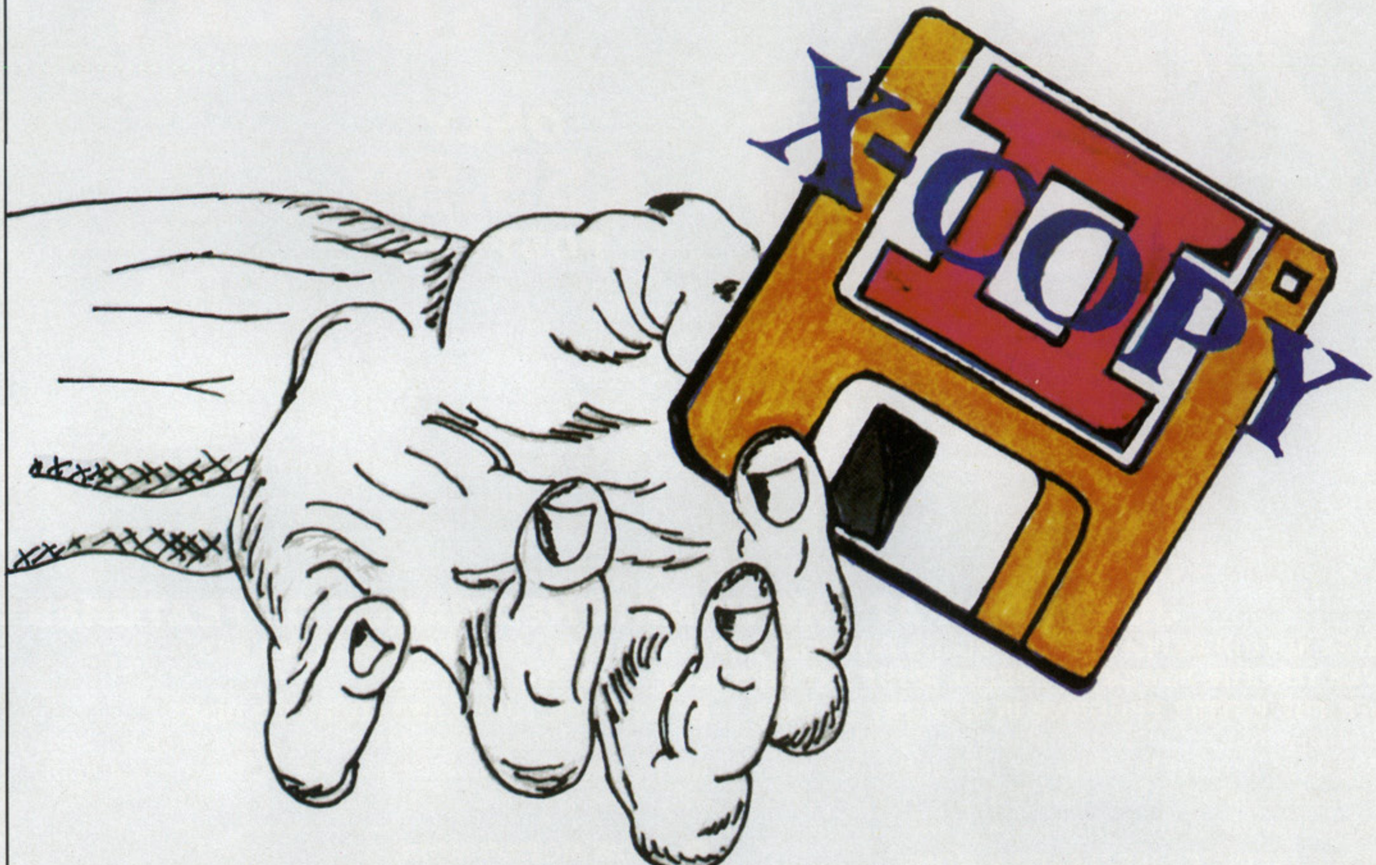


A nice farmhouse. This is the last friendly place that Thor will see for a good long while.

GRAPHICS	8
SOUND	5
INTELLECT	4
ADDICTION	7
OVERALL	81%

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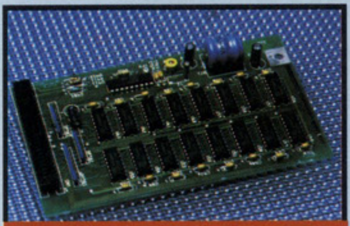
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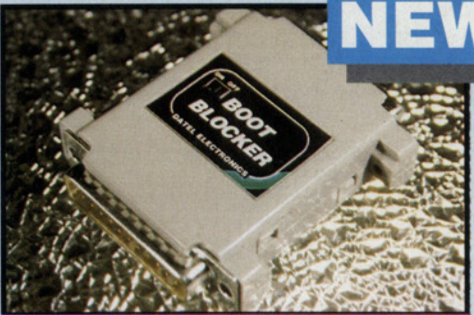
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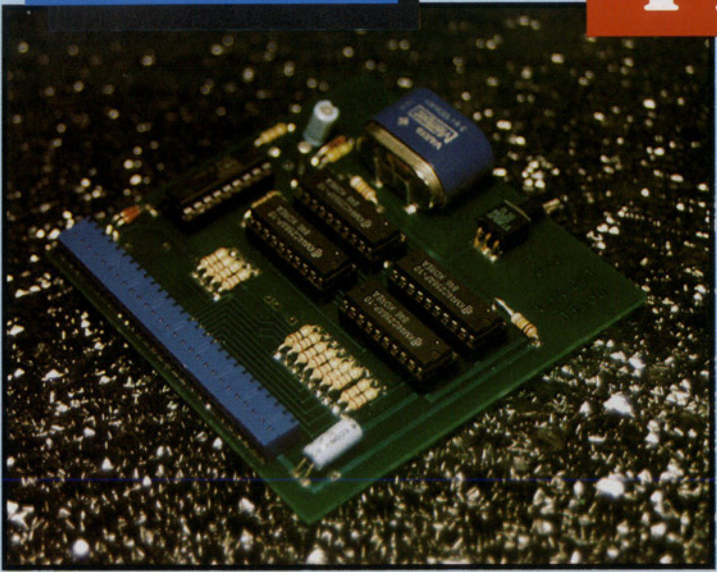
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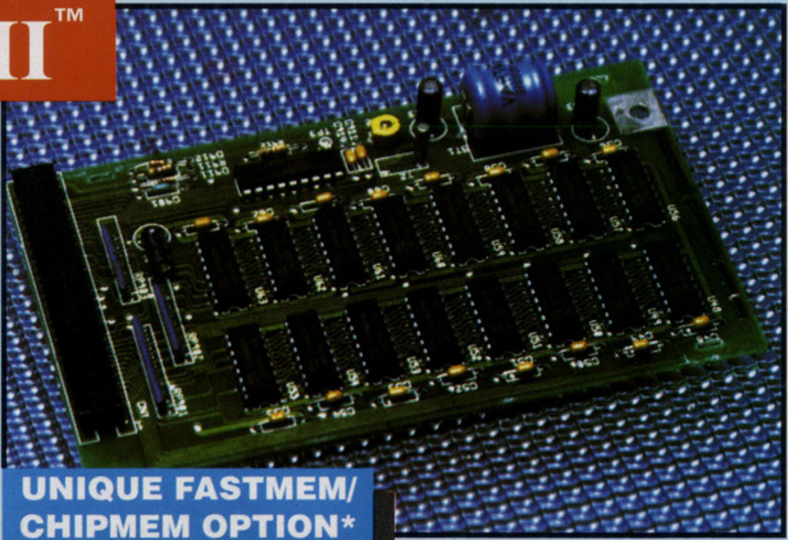
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GAMES Workshop

It's finally here – Mandarin's long-awaited AMOS has risen from the depths of vapourware to become a reality. **JASON HOLBORN** sorts out the facts from the hype.

Games creation systems for the Amiga have been thin on the ground, to say the least. What packages do exist have unfortunately proved to be rather too limited – Palace's *Shoot-em-up Construction Kit* was little more than 'edit the sprites, but the gameplay remains the same', while Microdeal's *Talespin* adventure writer failed to impress at all. In complete contrast, ST users have enjoyed two of the most successful games writing utilities to date – namely Mandarin's *STOS* and Incentive's *STAC*.

While Incentive still refuse to bow to public pressure and produce an Amiga version of *STAC* (come on Incentive, you know it makes sense!), Mandarin at least have proved that they listen to what the user wants with the release of an Amiga version of *STOS*. Since its announcement last year, Amiga users have been waiting patiently (the package has been delayed over eight months!) for what has been called the most important Amiga games-related release ever. Now, in what seems rather a subdued manner, Mandarin have unleashed their most ambitious and eagerly awaited product; *AMOS* has arrived.

Introducing AMOS



We must all have seen this screen a thousand times before. Yes folks, it's the *AMOS* Program Editor.

Although Mandarin would have you think otherwise, *AMOS* is primarily a programming language geared heavily towards the creation of arcade games. As well as the usual constructs and commands you'd expect from a modern BASIC, just about everything you've ever wanted to be able to do from BASIC is here – powerful sprite manipulation, sampled sounds, fast blitter objects, copper tricks to put even the most experienced demo coder to shame, ...and the list continues, and continues...

Most would have taken the easy option of porting *STOS* straight across onto the Amiga, but *AMOS* programmer Francois Lionet has done Amiga users proud with an implementation of his games writing system that promises to push the Amiga further than any other language has ever dared to try. Mandarin admit this was their original intention, but perfectionist Francois decided to start from scratch and take full advantage of the extra hardware that the Amiga has to offer.

BELOW: The *AMOS* Configuration Editor lets you customise your programming environment beyond belief. Just about everything can be customised with ease.

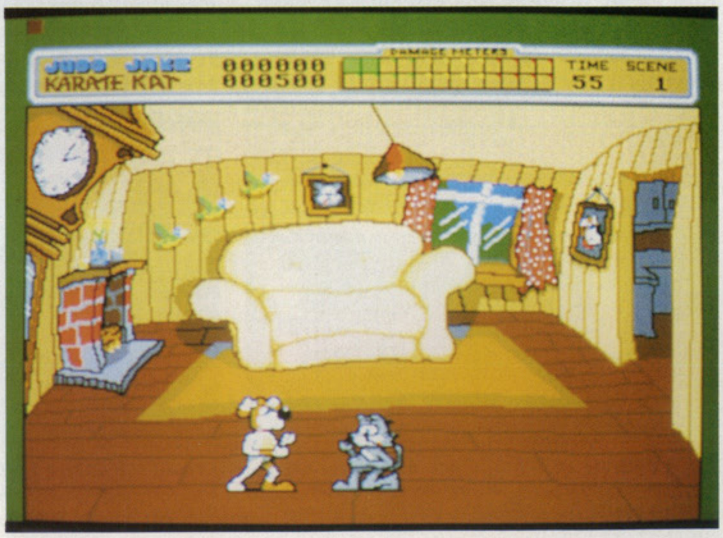


MAKE MONEY WITH AMOS

The million-dollar question is undoubtedly 'Can *AMOS* be used to produce commercial-quality games?' Well, from what we've already seen of what *AMOS* is capable of, the answer seems undoubtedly 'Yes'. Mandarin already have at least one *AMOS* game in the pipeline in the form of *Cartoon Capers*, a fun little *Karate Kid* meets Tom and Jerry type beat-em-up. If you can produce a game of similar quality, Mandarin may even consider marketing your game. OK, we've heard that one before too, but Mandarin seem quite genuine about it.

So what restrictions are there on producing a game using *AMOS*? Once again, the answer is favourable – not a great deal. Although the *AMOS* package does not include a compiler, it is possible to produce stand-alone games that can be freely distributed without Mandarin's consent. All they ask is that you acknowledge them by stating that your game was written using *AMOS* – which is not an unreasonable request.

BELOW: Mandarin's soon-to-be-released *Cartoon Capers* – you'll never believe that it was written in what is basically BASIC!





RIGHT: **The four sample games that are included with the *AMOS* package. As a demo of what *AMOS* is capable of, they certainly bode well for the future.**





The *AMOS* package consists of two disks containing the *AMOS* BASIC interpreter, a number of utility programs (or 'accessories' as *AMOS* prefers) and four complete games produced entirely using *AMOS*.

The games consist of *Amosteroids* (no prizes for guessing that this is an *Asteroids* clone), *Magic Forest* (a rather nicely done platforms and ladders type of game), *Castle AMOS* (a mouse driven graphic adventure) and, last but not least, *Frog Leap* (a fun little educational game from Database Software's *Fun School* series). None is particularly earth-shattering, but as a demo of what *AMOS* is capable of they bode well for the future.

BASICally Speaking

Calling *AMOS* a BASIC language may conjure up misconceptions for many people. The common image of BASIC is as a rather cumbersome and limited language that runs programs at a veritable snail's pace – all of which is true if you are used to using AmigaBASIC! However, this is definitely not the case with *AMOS*.

> "The language offers blisteringly fast operational speed with the ease and flexibility of use that you'd expect from other, more trendy languages"

AMOS BASIC is the heart of the *AMOS* system. The language offers blisteringly fast operational speed with the ease and flexibility of use that you'd expect from other, more trendy languages. The secret behind *AMOS*'s speed and power is the way it has been implemented. Many other BASICs are held back because they rely heavily on the Amiga operating system to handle such things as screens, windows, drawing functions etc. Although the Amiga O/S is powerful, the one thing it most definitely isn't is fast.

AMOS achieves its phenomenal speed by bypassing much of the operating system, using instead its own custom routines for most of its commands. The upshot of this is that *AMOS* isn't Intuition-based; instead, it creates and uses its own custom views that are not linked to Intuition, therefore making it impossible to carry out operations such as depth arranging the *AMOS* screen with other screens. However, if you are writing games the first thing you would usually do is to dump the operating system, so the lack of Intuition support isn't much of a loss. I will probably be called a heretic and stoned for saying that!

As BASICs go, *AMOS* is pretty well endowed. *AMOS* BASIC offers many modern structured programming constructs such as do...loop, if...then...else, while...wend, etc. Sections of code can be partitioned off into procedures that can be collapsed and expanded from within the *AMOS* editor, in the same manner as GFA BASIC. *AMOS* also provides extensive disk handling support, allowing both sequential and random access files to be easily handled. For maths freaks, *AMOS* offers a wide variety of the more commonly-needed mathematical functions. Surprisingly, *AMOS* doesn't use its own custom maths routines, prefering instead to use the standard Amiga maths routines held within mathtrans.library.

AMOS ACCESSORIES

Just providing a programming language isn't enough for creating games. For starters you'll need a utility to design all your game's sprites, then of course you need a music package for composing the sound track, a utility for designing the background graphics – and a sampler would come in handy for grabbing those digitised sounds. Although not everything is covered, *AMOS* provides a range of accessory programs to carry out many of these tasks.

Most immediately useable of these is the *AMOS* Sprite Designer. This little package is an impressive little chappie that will enable you to create animated BOBs (sprites) using any number of colours or of any resolution. As well as the usual editing functions, you can flip your sprite, rotate it and stretch it to your heart's delight.

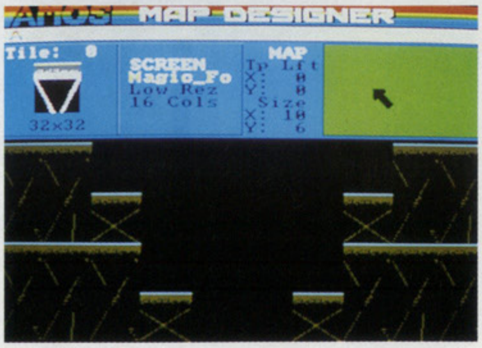
Also included is the *AMOS* Map designer, called TAME. TAME allows you to create massive maps built up from four different blocks (16 pixels by 16, 16x32, 32x16 or 32-pixel-square) cut from any IFF picture source.

Surprisingly, *AMOS* doesn't include a music editor like its ST predeccessor. For reasons unknown, Mandarin plan to release one as a separate product. As it is, you're going to need either *Sound Tracker*, *Game Music Creator* or *Aegis Sonix* if you want to add music to your creations. As the first two are PD, this isn't going to be too much of a hardship.

Last but not least, you're definitely going to need both a paint package such as *Deluxe Paint* (for producing most of the graphics for your games) and a decent sound sampler such as *MasterSound* (for digitising sound effects for the games). Once you've got hold of all of these, you're ready to produce that mega-game that has been pent up inside you for so long.



The *AMOS* Sprite editor is one of the most comprehensive programs of its type available – it certainly puts AmigaBASIC's ObjEdit to shame!



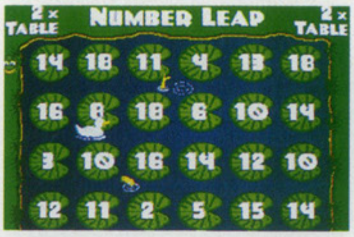
Creating multiple screen games is simple with the *AMOS* Map Editor, TAME. TAME allows the designer to cut blocks from any picture source.

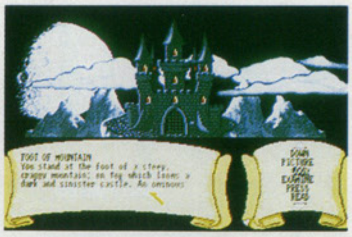
Screen Scene

Multiple screens are pretty old hat these days, but *AMOS* takes them one step further. Because *AMOS*'s screen handling is not tied to the constraints of Intuition, multiple screens can be created that are all part of the same view. This basically means that you can create a screen that is split into several subsections, each of which has its own resolution and colour palette. Even HAM and Extra Half Brite screens can be implemented with ease.

Pulling graphics into your own programs from a paint package such as *Deluxe Paint* has always been something of a ordeal from other BASICs, but *AMOS* makes the task a breeze. *AMOS* provides direct support for IFF graphics, thereby allowing any picture file to be pulled in from disk and displayed with a single command. It's nice to see that at least one BASIC finally addresses such an obvious failing of currently-available Amiga programming languages.

Copper tricks are an all-time favourite with demo and games programmers – we've all seen the coloured copper bars that seem to pop up in just about every demo these days. With *AMOS*, you can add these exciting effects to your own programs via the *AMOS* Rainbow





command. Most exciting of all is *AMOS's* support for the copper co-processor. *AMOS* includes commands covering the complete copper instruction set, allowing you to achieve visual effects that were previously only possible from low-level hardware programming.

BOB's Your Uncle

The secret of any game lies in the quality of its on-screen sprites, in terms of size, definition and quality of animation. Thankfully, much of the drudgery of incorporating animated sprites is handled by *AMOS*, so it's only left for you to decide how your sprites should behave.

AMOS supports both hardware and software sprites. Using what *AMOS* calls Computed Sprites, it is actually possible to display up to 64 hardware sprites on-screen simultaneously. Due to limitations of the Amiga hardware, hardware sprites are limited in both size and the number of colours they can use, so *AMOS* also supports the Amiga's unique blitter-based sprites, called BOBs. Although not as fast hardware sprites, the number of Blitter OBbjects you can use is limited only by memory.

Sprite animation is handled by *AMOS's* unique AMAL, a powerful animation programming language that allows *AMOS* to animate many on-screen objects at a phenomenal speed. AMAL can be used to animate just about anything, ranging from a simple sprite to an entire screen. The AMAL language includes its own subset of commands that run concurrently with the main *AMOS* program. This basically means that you don't have to worry about the movement of your sprites – as soon as the AMAL program is executed, *AMOS* runs it under interrupt. Even if you halt your program, your sprites will still continue to fly about the screen!

AMAL allows up to 16 sprites to be animated simultaneously, all of which have their own predefined patterns of movement. Using an animation language may sound daunting, but AMOS makes the task simple by providing a simple little utility that allows you to create movement paths by simply dragging the mouse pointer around the screen. Although this is not as comprehensive as Mandarin would have liked, the company does have plans to produce a fully-fledged AMAL editor which will be released into the public domain.

Sound Complicated?

The Amiga's ability to play back digitised sounds is one of its greatest assets, and *AMOS* addresses this with an impressive range of sound commands that will enable you to add both musical sound tracks and sampled sound effects to your game creations. As an added advantage, *AMOS* treats the playing of such sounds as an independent task – even if you're playing a particularly complex piece of music, your *AMOS* program will still run at full speed.

Standard IFF sampled sounds can be pulled into a sample bank and then played using the *AMOS* Sam Play command. You can vary the playback rate and even loop samples. However, most exciting off all is *AMOS's* ability to play sound tracks under interrupt. If you're the owner of either *Sound Tracker*, Andreas Tadix's *Game Music Creator* or the popular *Sonix* program from Aegis, then *AMOS* will allow you to use your musical masterpieces within your own programs once they have been converted to *AMOS* format using the included conversion utility. Once you start playing your soundtrack, *AMOS* takes over and the task of running the music is handled automatically.

Worth the Wait?

With over 500 commands to work with, providing a complete review of every aspect of *AMOS* is an almost impossible task – *AMOS* is just so powerful that you'll never stop finding new ways of applying its impressive range of commands and features. *AMOS* isn't just a BASIC language, it is *the* BASIC language for the Amiga – no other language will let you do so much with so little effort!

Within minutes you'll be achieving things that would have previously only have been possible from assembler – and even then, similar results would have taken you considerably longer to produce. No other Amiga programming language provides such a simple and direct method of getting the very most from everything the Amiga has to offer.

Although many have called *AMOS* a games creation system, It must be stressed that *AMOS* most certainly will not produce your game for you. *AMOS* is only a tool; what it can produce is limited only by the programming proficiency of the user. This is the case with any programming language – no matter how easy the language may make the task of producing a game, it's down to the programmer to learn how to use the facilities that the language provides to produce the final product. If you think you will produce a commercial-quality game with *AMOS* within your first week of use, then you're more than a bit over-optimistic.

> “AMOS most certainly will not produce your game for you – what it can produce is limited only by the programming proficiency of the user”

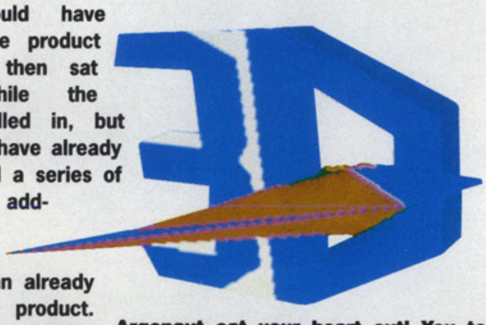
However, what *AMOS* aims to provide is a considerably easier way of achieving this final goal. Previously, the vast majority of time spent producing a game was wasted on sections of code that had absolutely nothing to do with the gameplay at all – handling the double buffering of screens, for instance. *AMOS* will happily handle such dirty work, allowing you to spend more time on the mechanics of the actual game itself.

It's fair to say that *AMOS* certainly isn't a jack of all trades. For serious applications programming, you're probably better off sticking with one of the more established languages such as GFA or HiSoft BASIC, but for producing programs that need to use ultra-fast graphics and animation, super-smooth scrolling and scintillating sound, there is really only one choice... and its name is *AMOS*.

AMOS
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AMOS – THE FUTURE

Most would have rushed the product out and then sat back while the profits rolled in, but Mandarin have already announced a series of follow-up add-ons to further enhance an already impressive product. First up is *AMOS* Sprites 600, which is actually being given away free of charge if you buy *AMOS* directly from Mandarin. As the name suggests, this pack consists of 600 different sprites which can be used freely within any of your *AMOS*-created games.



Argonaut eat your heart out! You too can create *StarGlider* quality games with the soon-to-be-released *AMOS 3D*.

Most exciting of all must undoubtedly be *AMOS 3D*. *AMOS 3D* is a language extension that adds the power of 3D graphics to the existing *AMOS* system. With it you'll be able to incorporate solid 3D objects into your *AMOS* games and then manipulate them on screen in real time. Mandarin claim that the package will enable you to produce *StarGlider*-type games with ease. The product is backed up by a sophisticated 3D object editor which will allow you to create and edit 3D objects without all the usual hassles involved in such a complicated task.

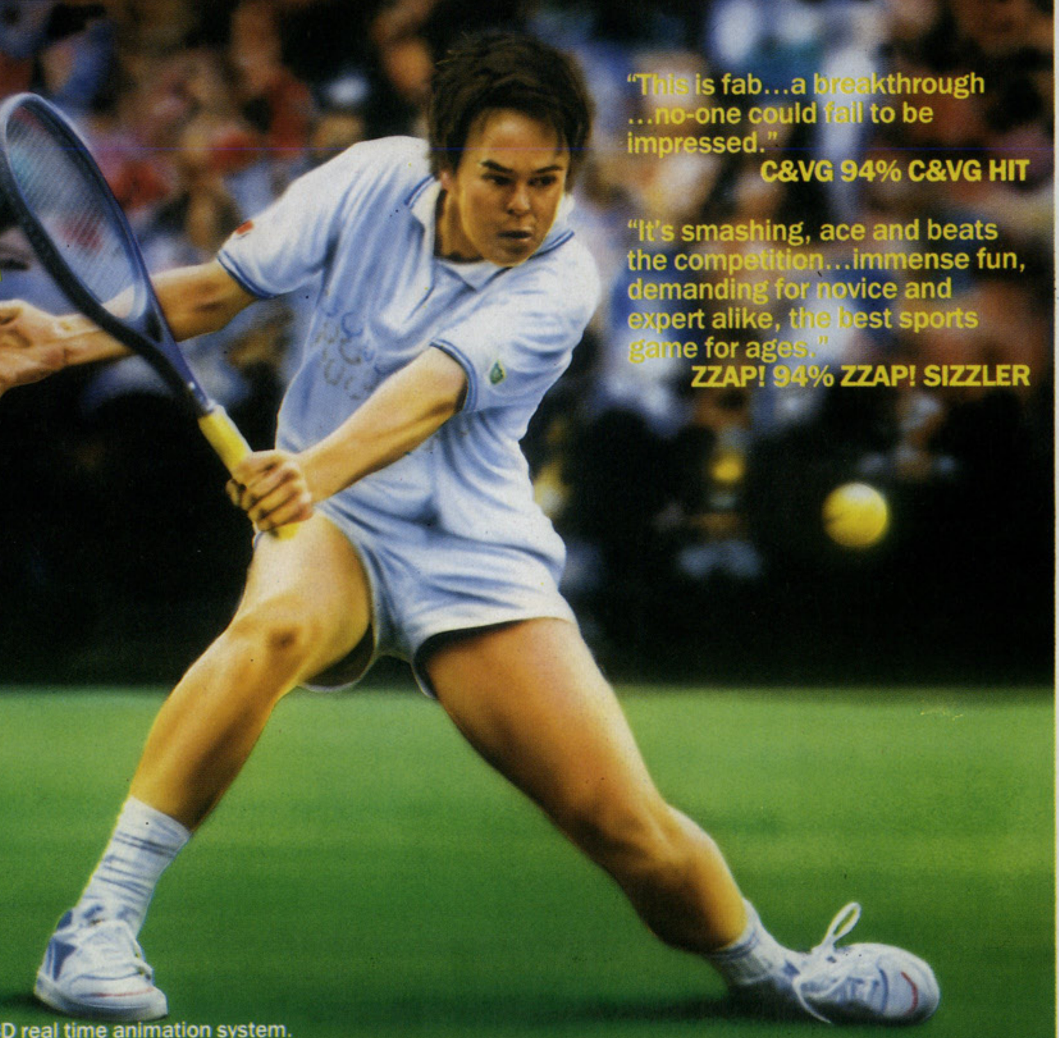
Last but not least, there's the *AMOS* Compiler which is being worked on as we speak. This little baby will allow you to take an existing *AMOS* program and compile it to a super-fast stand alone program.

Both the *AMOS* Compiler and *AMOS 3D* are pencilled in for release later this year, so keep your eyes peeled for reviews of both of these products in a future issue of *Amiga Format*.

• SENSIBLE SOFTWARE'S •

INTERNATIONAL 3D TENNIS

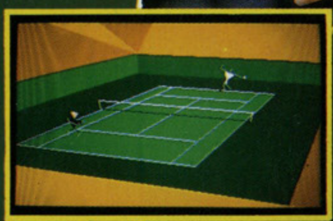
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PALACE



pd UPDATE

Why not take a trip to the PD libraries? Heads off on a search for all the best PD has to offer with RICHARD MONTEIRO.

FISH 336

The PD libraries are filled with quality games, but pulling together a decent collection can be a costly affair. However, Fish 336 contains three of the most addictive and compelling PD games you're likely to run into, all of which were written by the same prolific PD author, Anders Beijin.

Packed with three quality games and even a handy file requester for programmers, this disk is an absolute steal at the usual PD fee.

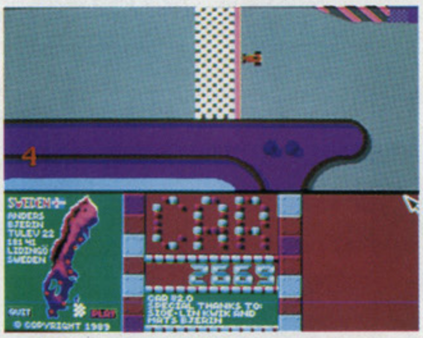
CAR

Anyone remember *Super Sprint* in the arcades? What a game that was! I remember pumping pounds into what must have been one of the most addictive race games ever. Unfortunately, although the game was converted to most of the popular home micros of the time (including the Atari ST!), it failed ever to materialise on the Amiga (a shame, I say).

However suffer no longer, as *Car* is here. OK, it hasn't exactly got the most awe-inspriring title you could possibly come up with for a racing game, but the gameplay is second to none. In true *Super Sprint* fashion, the game is a two-dimensional full-screen scrolling race game that boasts both an overscanned playing area and realistic sampled car sounds – the usual screeching tyres and revving engine noises.

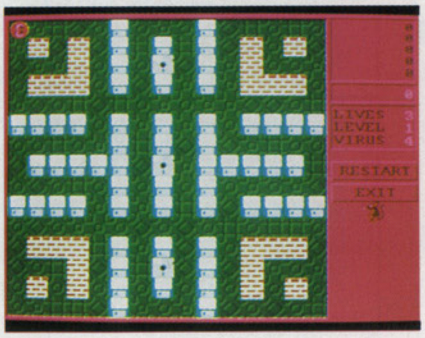
The aim of the game is to gain the fastest lap times by throwing your street racer around any one of the ten available tracks. However, someone ought to speak to the designers of the car you're driving as it seems to handle about as well as shopping trolley!

Of course, this should be of no great concern to such skilled gamesters as yourselves!



ABOVE: *Super Sprint*? No, this is *Car*.

BELOW: Platform fun abounds in *Sys*.



MINIBLAST

A shoot-em-up game that not only multi-tasks, but also runs from Workbench? It can't be possible, surely? Once again, author Anders Biejin does it in style with *Mini-Blast*, probably the world's first Workbench-based arcade game.

There's not a great deal you can say about *Mini-Blast*. Looking like a cross between *Defender* and *Scramble* (remember them?), the object of the game is pure and simple – shoot everything in sight.

Yep, it's time to unplug the brain and show no mercy as you blast everything to smithereens. As the instructions say – if it moves, shoot it and if it doesn't, then shoot it anyway!

SYS

Pengo fans will love this one. *Sys* is a modern-day adaptation of that classic arcade game that sees you assigned the task of cleaning viruses from your SYSOP's hard disk.

This certainly isn't going to be a picnic as those viruses aren't going to take it sitting down – they're after your blood, matey!

Who ever said PD games are limited? Whoever it was, take them out and shoot them! *Sys* offers fifty screens of frantic *Pengo*-like arcade action to keep you going. This is definitely destined to be a PD classic!

FILEWINDOW

Last but not least, programmers will love this freely distributable file requester module. Anders' requester uses dynamically allocated memory to hold the file names so the only limitation is the amount of memory available.

Not only that, but the requester also includes a handy filter option to limit display of filenames to only ones with a specific extension (very useful). Even the ARP requester isn't a patch on this little baby!

IFF2EX
Fish 331

Ever wished you could display IFF pictures without first having to load them into a paint package or using one of the multitude of picture-viewing utilities? If so, then *IFF2Ex* could be the answer to your problems.

Iff2Ex takes a standard IFF picture, be it NTSC or PAL, overscanned, interlaced or what ever, and turns it into an executable program file. By simply assigning a tool icon to it, your picture can be viewed at any time by just clicking on its icon – no unneccessary disk swapping or external programs are needed as the picture contains its own picture-viewing code.

STILLSTORE
Fish 317

OK, *StillStore* sounds like just another slideshow program, but it is actually a very handy desktop video tool. The program loads and displays IFF images of any resolution interchangeably from a batch file. The user may then easily skip forward or backwards through one or more pictures in the list.

The program can be used 'on air' with no concern that a pull-down menu will suddenly appear in the viewable area. It also provides a precise cue for changing windows or screens.

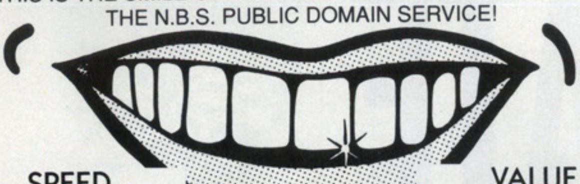
OCTALYZER
Crazy Joe's Disk 259

We've all played with the endless variations of the now-infamous *Sound Tracker* utility, but none can compare with this latest arrival, *Octalyzer* – the worlds first eight-channel *Sound Tracker* utility. *Octalyzer* is a sophisticated music composition tool that uses Amiga

NBS

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Demos CORNER

The welcome return, in all-new form, of a very famous demo...

JUGGETTE TBAG 41

The famous juggler is back – and this time he's had a sex change. Yes folks, the demo that sold more Amigas than Commodore did has returned with a vengence.

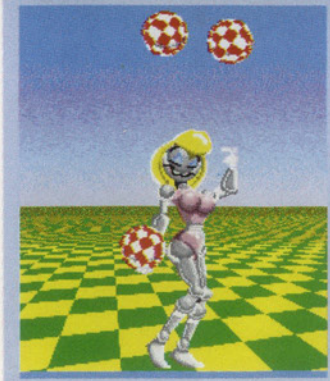
OK, it's not quite *Juggler II*, but in the spirit of equal opportunities the Juggler has brought along his missus. This time, however, Mrs Juggler has sacrificed the ray-traced HAM graphics of the oiginal in favour of the now seemingly trendy Extra Half Brite mode. Although this basically means that the demo lacks the near-photographic qualities of the original, it stills retains that special *Juggler* magic that made the original such a smash.

Beg, borrow or steal a copy, because this one's a classic not to be missed at any cost!







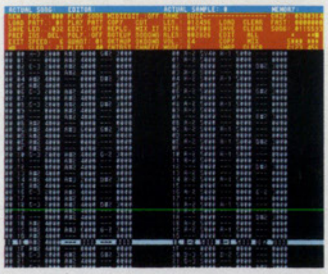




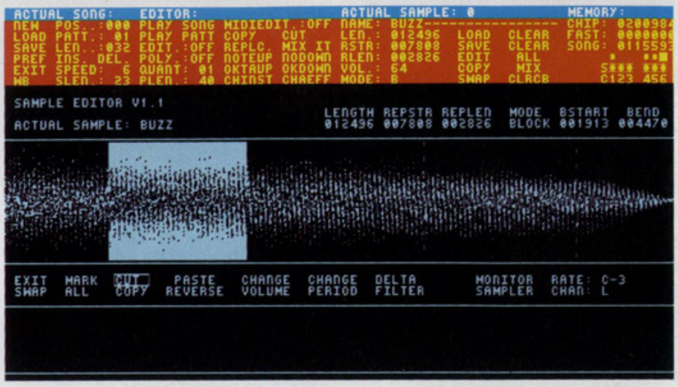


sound samples as instruments. Using the now-familiar *Sound Tracker* editing system, songs are built up from patterns constructed by placing notes into any of the eight available 'tracks'.

Anyone who has used a *Sound Tracker*-like program will know how quickly you'll become aquainted with this method of working. Such a system looks daunting initially, but you'll be surprised how soon you'll be churning out those musical masterpieces.



RIGHT AND BELOW: *Octalyzer* in all its slightly-bewildering glory.



What helps make this latest release far superior to any other *Sound Tracker* utility is the inclusion of both a standard file requester (no more preset editor can't be a bad thing!) and the use of a small font that allows considerably more music data to be displayed on-screen simultaneously.

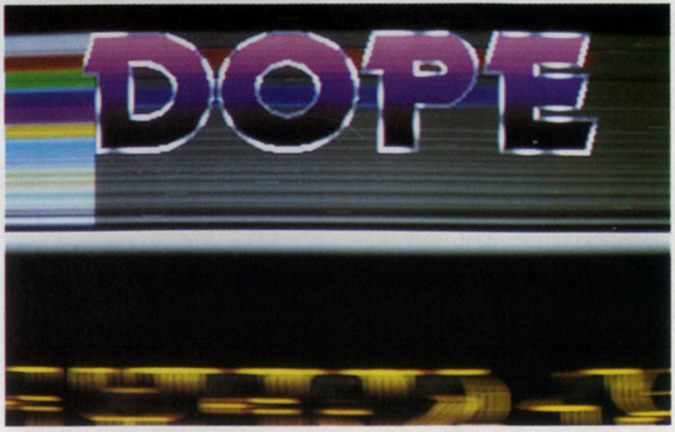
Just like Microdeal's *Quartet*, *Octalyzer* includes extensive sample editing features. Samples can be cut, pasted, reversed, filtered and generally fiddled around with. Although certainly not the best sample editor in the world, it has the advantage of allowing direct sampling straight into the *Octalyzer* program – at last you can compose your music and create sampled instruments from within the same program!

Also included is a handy utility to convert standard 4-channel *Sound Tracker* song files to work with this new 8-channel variant. Of course the converted files will still only contain four channels of music data – what did you expect? – but at least you'll now have the opportunity to 'pad out' your music scores with extra music data.



INTROMAKER Crazy Joe's Disk 580

Ever wanted to create your own demos, complete with scrolly messages, shimmering logos and cliched star fields, but have been held back by one factor – a total lack of programming talent? If so,



ABOVE and ABOVE LEFT: *Intromaker* makes demo-writing easy.



then unleash your demo ideas on an unsuspecting world with *IntroMaker*. Forget about assemblers and other such complicated beasties – *IntroMaker* does all the hard work for you!

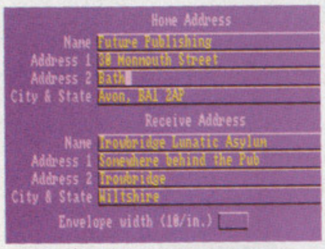
TBAG 41 Amiganuts

TBAG disks have always been worth investigating, and this latest disk certainly isn't going to flaunt tradition. One particularly nice addition to the TBAG collection is a new icon-driven interface that allows you to run all the programs and read their documentation from a simple menu-based system.

EnveloPrinter

No prizes for guessing what this program does! *EnveloPrinter* is a program designed to allow use of your Amiga-compatible printer for printing envelope address labels. It allows a large degree of customization, and use of the special styles of your printer.

Features include automatic loading of home-address default, easy-to-use mouse and menu interface, support for Preference printers, custom envelope widths in INCHES (not characters) and a lot more besides.



***Enveloprinter* – a bit useful!**

Garbage Man

It's easy to clutter up your hard disk with unused files. *Garbage Man* is a short utility designed to make disk management easier by reducing such clutter. What it does is search for multiple copies of the same file on a disk, reporting any duplicate files found and what sub-directories the duplicates are in.

PrFonts

It's all too easy to lose track of what fonts you currently have installed on a particular boot disk. *PrFonts* reads a list of all available fonts and then draws one line of each on a custom hi-res screen and then dumps the screen out to printer. It then clears the screen and repeats the above until all fonts have been printed.

Demos CORNER

DRAGON'S MEGA DEMO Demon Software

Strange how the demos scene seems to be so influenced by fads and 'in' programming techniques. No sooner does one demo crew produce a particular effect, than another follows suit in an attempt to better the original. Dragon's Mega Demo is one such disk, containing several demos that all push existing demo techniques to their limits.

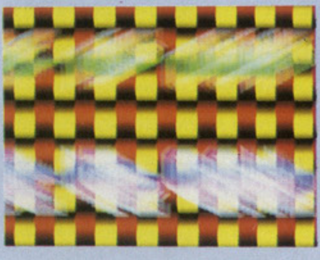


Lovely Rasters

Wow! If you thought copper colour bars were pretty tame stuff, you've got to check out this little bMeauty. Colour bars of all descriptions bounce, fly and rotate around the screen in time to a boppy House sound track.

Artificial Demo

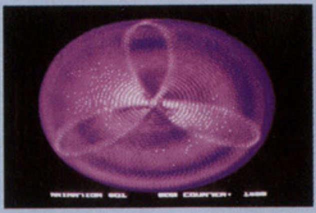
Shaded spherical blitter objects seem to be the in thing to have flying about the screen of your demo these days. Dragon certainly seem to have mastered the art with the Artificial demo. Although certainly not groundbreaking stuff, the combination of fast blitter objects and a thumpingly good heavy synth-rock sound tracks makes for a demo worth seeing.



Unlimited Bobs

Demo writers are a competitive lot. The latest 'challenge' amongst the demo-writing elite seems to be how many blitter objects they can throw around the screen simultaneously.

While everyone else is feeling pleased with themselves because they've managed to display several hundred simultaneously, the Dragon's have pulled the carpet from under their feet with a demo



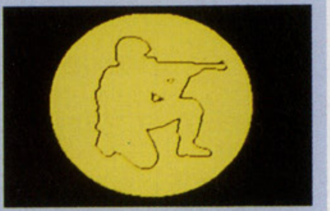
that draws thousands of BOBs. As the seconds pass, a small BOB counter keeps track of the number of bobs being drawn; first the counter reaches a thousand and you're already impressed, then 2000, then 3000, then 4000, and still the counter continues onward – these guys just don't know where to stop!

Multi-Scroll

Dragon's talents aren't just restricted to blitter objects – they certainly know how to use the Amiga's scroll hardware, which is vividly shown within the Multi-Scroll demo. Eight levels of parallax scrolling bounce across the screen. If you ever want to impress your friends with the Amiga's scrolling capabilites, this is the program to load.

COMA Riverdene PDL

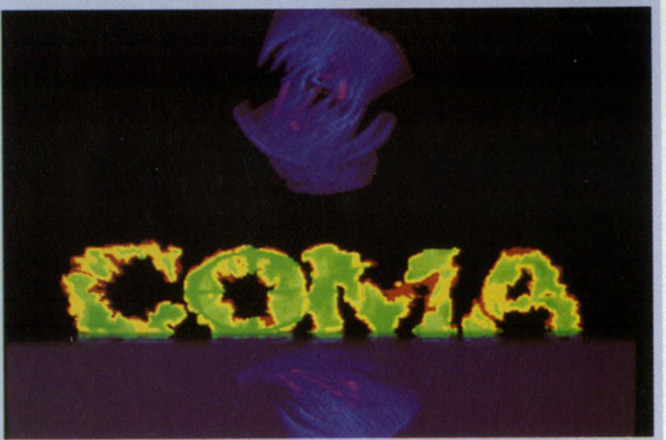
Is it a demo or is it a music video? If you're bored of seeing scrolly text, starfields and bouncing colour bars, then perhaps Coma is for you. Looking more like a music video for one of the latest hip House bands, you just won't believe that you're watching an Amiga screen – Coma really does look like something straight out of Top Of The Pops.





This demo ain't like anything you've ever seen on an Amiga screen. In true 'blip-vert' fashion, images flash on the screen in time to the music while an artist's wooden dummy gets down to the beat. There's only one thing left to say: Che- Che- Check this out!





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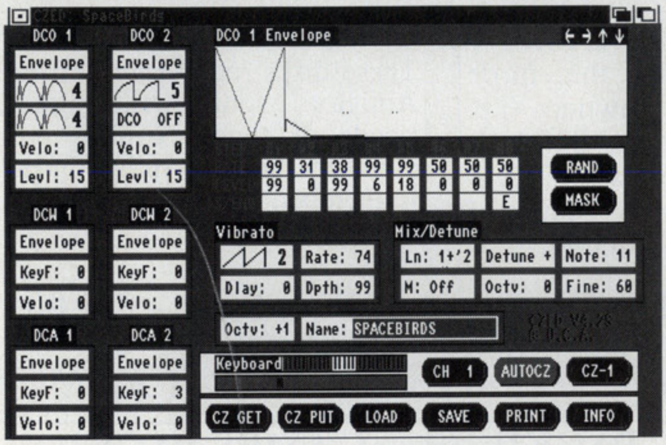
Here's a quick selection of PD programs for all you Amiga MIDI enthusiasts out there.

CZED
Fish 323

What a bargain, missus! *CZEd* is one of those programs that truely demonstrate the quality of Amiga PD software. It was once a commercial release, but programmer Oliver Wagner decided to withdraw the program and re-issue it as a PD freebie – warms the cockles of your heart, doesn't it!

It doesn't take a brain the size of a planet to suss out that *CZEd* is a patch editor for the Casio CZ range of synthesisers. The program is a fully-fledged sound editor that will enable you to edit the sounds within your Casio synthesiser on your Amiga.

Not only that, but the program acts as a split simulator that allows the CZ-101, 1000 and 230S to share voice data. The program can also be used store entire CZ banks out onto Amiga floppy disks, thereby saving you a small fortune in synth RAM cards.



APOLLO MIDI RECORDER
Softville UGA UTILS 11

The Amiga has never really been particularly well endowed in the music software department. OK, if you want to write jolly little ditties that use the internal sound then there's plenty to chose from, otherwise you're stuck. Things are starting to change, however, with the arrival of *Apollo*, the first ever PD MIDI sequencer for the Amiga.

Although definitely not a *Music-X* killer, *Apollo* is a simple multi-track MIDI recorder program that could serve as an ideal introduction to the world of MIDI sequencing for those too money-conscious to take the plunge and fork out for a 'professional' sequencer. The current version offers 16 tracks of real-time recording with each track being able to hold upto 800 MIDI events.

Although it is perhaps rather too limited to be useful, *Apollo* author Joroen K Sparla hopes to take the project much further by incorporating a fully Intuition-based user interface (let's face it, *Apollo* definitely needs it!) and many extra sequencing tools that will make Apollo a real heavywight package. Let's hope that Joroen decides to place the final product into the PD Libraries!

K1 EDITOR
Fish 332

Kawai K1 synth owners needn't feel left out as the PD libraries have something to offer them as well. The *K1 Editor* is an... er... editor for the K1. You can create and edit voice data for your Kawai from the comfort of the Amiga desktop environment. For added value, the program even includes a couple of auxiliary programs to help with the daunting task of managing sound dumps.

PD TOP TEN
GTS Titles



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3 FISH 295
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KA24 - Kylie Minogue Demo disk 2. Needs KA23 to run.
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KA26 - Shanghai. Playable demo of great game.
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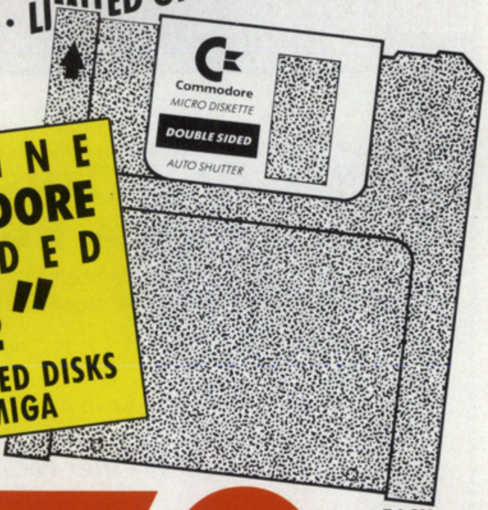
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CADAVER
The Bitmap Brothers are back with a vengeance. *Cadaver* is graphically brilliant, sonically superb and the gameplay is second to none. Find out for yourself with our exclusive demo of Imageworks' latest masterpiece.

FENSTER
Forget *ScreenX*, for *Fenster* is here. Never before in the history of screen handling utilities have so many tools been available within such a small utility.

ZAP
Forget *FileZap*, for *Zap* is here. Edit binary files to your heart's content with *Zap*, the first truly multitasking binary file editor that has more well-designed and fun-to-use features than Britt Ekland.

POPUPMENU
Forget, erm, something or other, for *PopUpMenu* is here. With *PopUpMenu*, never again will you have to move the mouse pointer all the way across the screen to access pull-down menus.

MENACE SOURCE
In the last enthralling installment of the *Menace* saga, the end-of-level guardian rears its ugly head. Pick the source to pieces, then play the game.

LHARCA
One for modem users, this. Archiving utilities have always been rather unfriendly fellows. That was, of course, until the arrival of *LHArcA*, the world's first Intuition-based archiving utility.

COPPER TUTORIAL
No, we're not trying to turn you into one of the boys in blue. We are of course talking copper of the silicon variety. Study and learn from Paul Andreas Overaa's subtle C source code.

UP TO £800 UP FOR GRABS!

Think you've got what it takes to write for the *Amiga Format* Coverdisk? Get your programming tools out and prove what you can do, and earn yourself some cash in the process. We're after Workbench hacks, demos, utilities, games, game cheats... You could earn up to £800! Turn to Page 92 for details.

BACK UP YOUR COVERDISK IMMEDIATELY!!!

DON'T KNOW HOW? SEE P 92 FAST! ENSURE YOU WRITE-PROTECT YOUR DISK BEFORE USE!

A marvellous playable demo of the Bitmap Brothers' latest, *Cadaver*, heads up this month's high-quality assortment of software at a price that's right for your pocket. There's so much more than TV times on this month's *Amiga Format* Coverdisk!



He may look like Noggin the Nog, but our little fellow is one hard case of a hero and is quite capable of handling himself.

CADAVER

PROGRAM: IMAGEWORKS
FILES: CADAVER, CADAVER.DOC

Wulf castle stands alone in the dense swamps that surround it. Once the power-base of the Wulf dynasty, it now lies deserted except for one person: Dianos the Necromancer. Many legends pervade the old ruin: tales of fallen knights, an exiled brother and a treacherous chancellor.

Hired as a bounty hunter by the captains of the murdered Lord Carolus, you are asked to enter the castle and destroy his assassin, the insane Chancellor Dianos. Many, rooms lie between you and the upper chambers where Dianos has taken up residence and, considering the recent struggles that have taken place, there will be lethal traps waiting around every corner. Monsters of many kinds have taken up residence with the evil Necromancer and others have been summoned from their ethereal planes to serve his every wish without question.



Arms and the man – a spear!



Checking in chests could be a good way of tracing treasure...

Looming in the darkness, the evil of Wulf Castle awaits you. Go forward, brave knight, and rid the land of Dianos' tyranny. Oh, and don't forget to switch off all the lights and put the cat out before you leave.

The Demo

Anyone remember those classic 3D isometric games that were so popular on the 8-bit machines a few years back? *Cadaver* continues the tradition while still managing to add a healthy smidgeon of that magic that only the Bitmap Brothers and the Amiga can deliver. *Cadaver* is played using a joystick and occasional key presses, so have your joystick plugged in and you'll be ready to rock and roll.

The small level on this playable demo of Cadaver was specially created for *Amiga Format*. It is not a part of the finished game as the Bitmap Brothers felt that revealing any of the challenges before the release of the product would mar future players enjoyment. The action is

set within the gatehouse as a prelude to the castle itself.

Players will find a selection of puzzles, spells, potions and one monster type in order to practice those skills necessary for playing the full game. Not all items that are found littering the building will be of use, but most are worth investigating. It is not necessary to solve all the puzzles to complete the game, but many will provide bonuses of gold or experience.

Getting Going

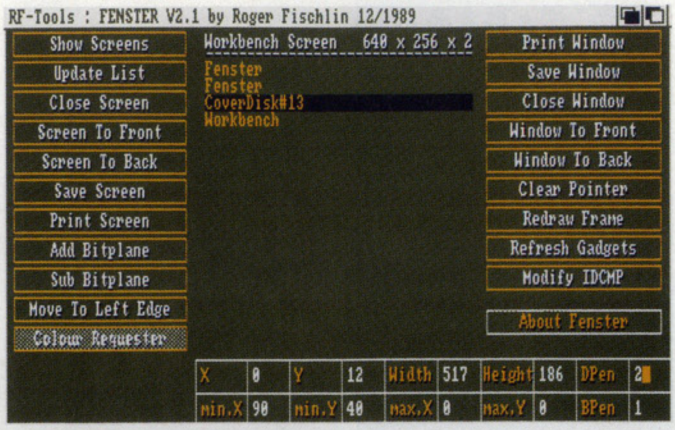
Can't wait to get started? Then turn on your Amiga with the Coverdisk in the internal drive and you're half-way there already. When our scrolly message screen pops up, just click the left mouse-button and the game will automatically load. If you get a vertical black line through the centre of the screen after the game has loaded, reload the demo again by turning your machine off then on again (this clears the memory completely). Do not touch the mouse while the game is loading.

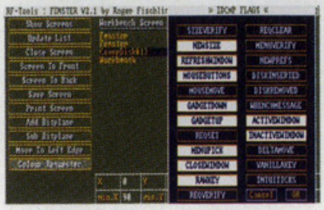
FENSTER

PROGRAM: ROGER FISHLIN
FILES: FENSTER, FENSTER.DOC, ARP.LIBRARY

Here it is, the definitive Intuition screen and window management program. Forget *Snapshot*, forget *ScreenX*, forget the rest, *Fenster* has no competition. Within this single program, you'll find every tool that you could ever wish for to help you keep all those windows and screens on the leash. With *Fenster* you can:

- Close any window or screen without the program that generated it ever having to know…
- Save a screen, or even a window, as an IFF compatible file that can be loaded into any Amiga paint package to be touched up…
- Dump any screen to printer without having to mess around with the crummy Workbench screendump utility…
- Change the attributes of any screen or window without having to mess around with binary file editors. You can change a windows size, change its IDCMP flags, refresh any gadgets…





Getting Started

Before you can use *Fenster*, you will first have to install arp.library onto the boot disk of your Workbench disk.

This can be achieved by double-clicking on the *Install_Arp* program that can be found within the *LHArcA* drawer (not the *Fenster* drawer). This may involve some disk swapping, but once it's complete you're ready to go.

Double-click on the *Fenster* icon and this power-packed, super dooper little utility will spring to life. OK, a little window will open. This is *Fenster* in sleep mode. If you now activate the *Fenster* window by clicking on it and then press the right mouse button, *Fenster* will show you everything it has to offer by opening a custom screen containing loads of useful gadgets. For more info on how to actually use the power now at your disposal, check out the documentation file, FENSTER.DOC.

POPUPMENU

PROGRAM:
FILES: POPUPMENU, POPUPMENU.DOC

Pull-down menus are old hat. Improve your Workbench with *PopUpMenu*, a handy little utility that rids Workbench (and any programs that are run after installing *PopUpMenu*) of the menu strip and those pull-down menus.

What's wrong with pull-down menus?, I hear you ask. Simply, every time you wish to access a menu you have to move the mouse pointer out of the window that you are working in and move it up to the top left-hand corner of the screen. With *PopUpMenu*, press the right mouse button and those menus appear instantly anywhere on the screen. Pretty clever stuff, I'm sure you'll agree!

Getting Started

Double-click on the *PopUpMenu* icon and that's it – from now on, every program that uses Intuition menus will work perfectly well with *PopUpMenus* (just check out the screenshot on the bottom of this page for proof positive). Instructions (you need instructions?) are in the usual place.

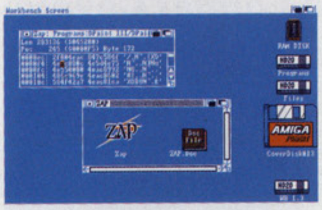
ZAP

PROGRAM:
FILES: ZAP, ZAP.DOC

Zap, as the name doesn't suggest at all, is a binary file editing program. You can examine and modify the file in both hexadecimal form and in ASCII.

Unlike other programs we could mention, *Zap* keeps the file in memory, so moving around the file and searching for chunks is very fast. That said, keep your eye on the memory meter, because *Zap* can gobble up the memory when editing large binary files.

What sets *Zap* apart from that other great binary file editor, *NewZap*, are it's multi-tasking capabilities and lightning fast operational speed. Instead of hogging the entire screen display like *NewZap* always used to do, the *Zap* window can be re-sized and pushed around the screen without a single complaint.

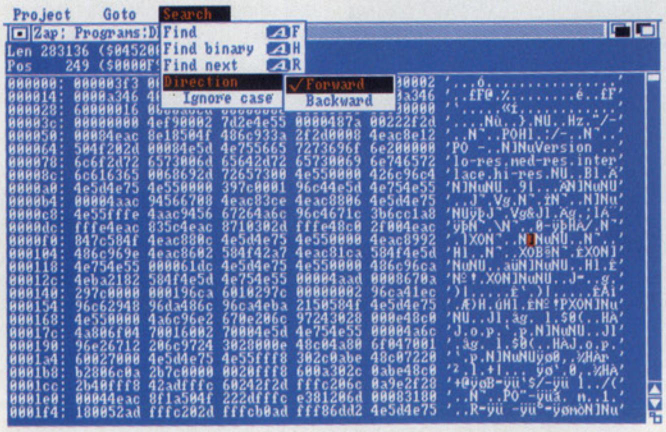


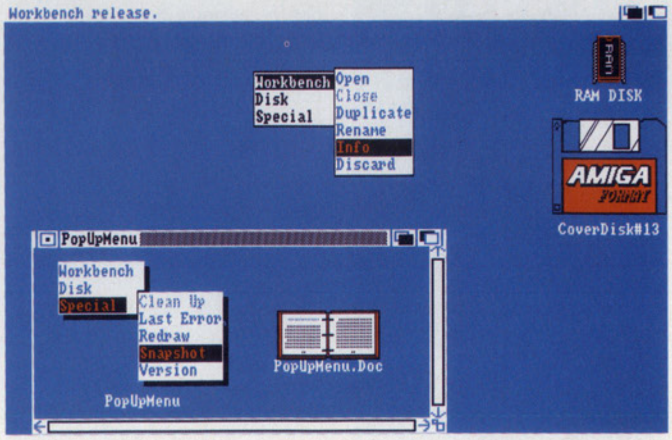
Getting Started

Zap can be started either from CLI or Workbench. When starting from CLI, the file name can be given as a command line parameter. If the name contains spaces it can be enclosed in double quotes.

When starting *Zap* from Workbench, a file can be selected by first clicking the *Zap* icon and then holding down the shift-key and double-clicking the icon of the file you want to edit.

If you don't specify a file name when starting up the program, you can always use the Load menu option to pull a file into *Zap*.





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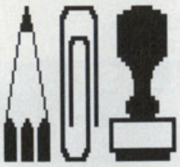
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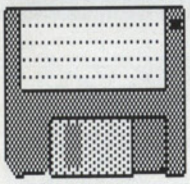
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FFISH 244 – Boot Intro you specify The headline text of upto 44 characters and the scrolling text of upto 300.

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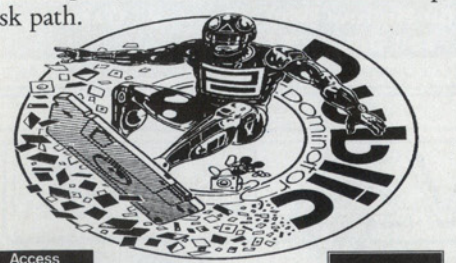
FFISH253– Elements a display of the periodic table.

FFISH258 BACKUP allows you to backup any hard disk path.

PDOM 62 – The Public Dominator Anti Virus Disk: Virus X V4.0, VCheck V1.2 (for memory), VCheck V1.9 (for disk drives), Zero Virus V1.3 the fully integrated virus detector and killer. Also Boot Block Champion the utility.

PDOM 86 – The Memory Expansions demo No1.

PDOM 87 – The Memory Expansions demo 2. Both Require 1MB RAM.



PDOM 65 and 66 – Red Sector Mega Demo. THE best demo on the Amiga! A 2 disk demo with the best sounds and graphics! A must!

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PDOM 148 – Escape from Singes Castle an excellent demo of the game with fabulous animation! A mega follow up Space Ace!

PDOM150 – Scoopex Mental Hangover! THE best demo ever! AMFTC!

PDOM79, 80 + 81 the StarTrek game! Abrilliant three disk graphics game! Requires 1MB RAM.

Access VISA

Most of the disks in this advert actually contain more than is listed, for full details of all the disks, send for our disk catalogue, which costs only 70p fully inclusive! and allows fast and easy searching for items!

PD Disk Prices: 1 to 5 disks are £3.00 each, 6 to 10 disks are £2.75 each and 11 or more disks are £2.50 each! Blank disks : 10–£7.00, 50–£33.00. Disk cleaning kits – £2.50.

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Hertfordshire, CM23 3TZ.
Telephone 0279 757692.

LHARCA

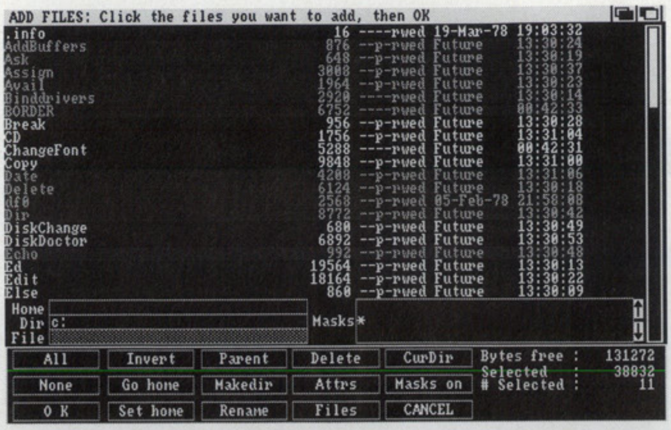
PROGRAM:
FILES: LHARCA. LHARCA.DOC, ARP.LIBRARY, INSTALL_ARP

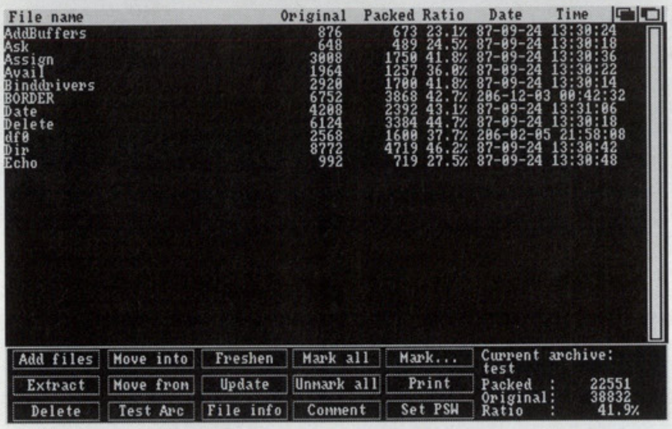
Calling all you communications fanatics! Have we got a little scorcher for you! *LHArcA* is an archiving tool that has two features to recommended it. First, it's fully Intuition-based so you don't have to learn a massive list of dreaded command line arguments before you can even run the program. Secondly, it's pretty darned fast.

Although this is only a pre-release version, *LHArcA* is one mean mother in the speed department - If *LHArcA* is the Ferrari of compression utilities, then the rest are nothing more than Reliant Robins. So that you don't have to re-do all your old archives, *LHArcA* is 100% compatible with *LHArc* on the PC and most *Arc* utilities on the Amiga.

But why do I need an archiving program? I hear you ask. The answer is simple. Most bulletin boards include file sections that are packed with useful programs for your Amiga, all of which are (usually) freely available to be downloaded at your whim.

To save disk space, however, most (if not all) will be compressed in some form. The most common method of compression is 'arcing' (pronounced 'arking'). With *LHArcA*, you can download all those programs and decompress them with ease.





Getting Started

What can I say that you don't already know? Just double-click on the *LHArcA* icon and you're away. As always, full instructions are included within the same directory. However, if you've ever used an archiving utility before, then you probably won't need these at all – *LHArcA* really is that easy to use.

As *LHArcA* makes extensive use of MicroSmith's Arp library, this will have to be copied to the LIBS: directory of your boot disk. This can be achieved by double-clicking on the *Install_Arp* program that can be found within the *LHArcA* drawer. This may involve some disk swapping, but once it is complete, you're ready to go.

DISK EXTRA

COPPER TUTORIAL

PROGRAM: BY PAUL ANDREAS OVERAA
FILES: COPPERTEST, COPPERTEST.C, CDSD

So you've already learned how being a good community policeman, how to help old grannies across the road and nick burglars before they get a chance to get up to no good. We've seen how, if you're a good bobby, they'll let you do the highway patrol and drive one of those really fast Cosworths that have those really neat flashing lights and sirens that go dee-derr, dee-derr and chase boy racers at such high speeds that the front of the cars start to glow…

Hang on a minute, something's up here – you'd never be able to get a *whole* Cosworth onto the *Amiga Format* Coverdisk…

Getting Started

Seriously though, there are two files to accompany the article to be found elsewhere within this issue of *Format*. *CopperTest* is a demo that shows how to accomplish copper colour bars from C and *CopperTest.c* is (obviously) the C source code for that very same demonstartion program.

MENACE SOURCE

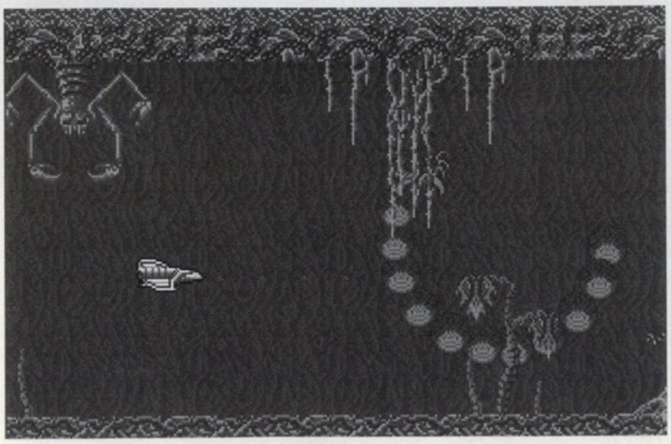
PROGRAM: DAVE JONES
FILES: ALIENS, BONUS.S, GUARDIAN, MENACE, MENACE.S, MINE.S, PATHS.S, SHIPS.S

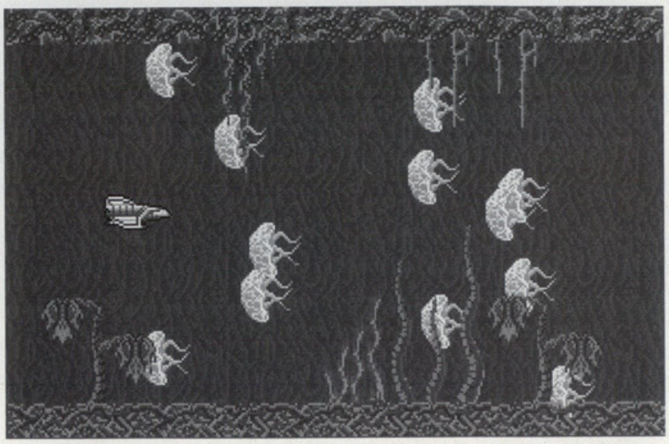
Everyone's favourite programmer, Dave Jones, the man everyone is calling, er, Dave Jones, returns again this month with another revealing chunk of source from Dave's monolithic *Menace*. This month, Dave has added the 'orrible tentacled end-of-level guardian that caused so many gameplayers to shout 'Eeek!, look at that end-of-level guardian'.

Some of you may have also noticed that the last lot of source code published for this article was incomplete. There should have been an extra file called ALIENS which somehow didn't (as such) make it to Coverdisk city. The good news is that we've bunged the little fellow on as well, so your source code collection is now virtually complete and ready to go.

Getting Started

Dave's offering is starting to get rather large (ooer, missus!), so 512K Amiga owners may start to experience problems getting the executable to run from Workbench. To assure success every time, make sure that the *Menace* executable is the first thing you load and that as many Workbench windows are closed as possible. Better still, drag the *Menace* icon out onto the Workbench screen, close the *Menace* window and *then* double-click on the *Menace* icon. If you still have problems loading the demo (ie, it won't), then turn off your machine for a while and then reload Workbench.





USING YOUR FORMAT DISK

IMPORTANT! Before using your *Amiga Format* disk, you should make a back-up of the master disk as soon as possible.

BACKING UP YOUR DISK

For many reasons, it is important to make a backup of the Coverdisk as soon as possible. Copying the disk may sound like a complicated task suitable for techno-buffs only, but it is surprisingly simple provided you read the following instructions carefully:

1. First, turn on your machine and load Workbench. Once the Workbench screen appears and the disk-drive light goes out, remove your Workbench disk and insert our Coverdisk.

2. Next, click once on the Coverdisk icon and then press the right mouse-button and the Workbench menus will appear. Now, while keeping the right mouse-button depressed, move the mouse pointer over to the 'Workbench' heading and a menu will drop down. Move the mouse pointer over the 'duplicate' menu option and then press the left mouse-button.

3. After a few seconds' disk access, the Workbench DiskCopy tool will be loaded and run. Now just follow the on-screen prompts and your *Amiga Format* Coverdisk will be copied to a backup disk. When the machine asks for the destination, insert your blank disk into the drive. Further instructions are in the user's guide that comes with your Amiga.

USING THE PROGRAMS

All programs on the *Amiga Format* disk are specially set up to make them as easy to use as possible. If you can use the Amiga's Workbench then you can use our Coverdisk! If you do have problems with a program, full instructions on loading and using the programs are included in Disk Extra and these should get you up and running. If you still have problems, you should read the documentation file (.DOC) that is included with every program. To run any of the programs on this month's Coverdisk, follow a simple procedure: unless specified differently within Disk Extra, just double-click on the program's icon on the Workbench and it will load and run. Full details on how to use the programs once they have loaded are inc-luded as a documentation (text) file with the program.

To display a documentation file, just double-click on the appropriate .DOC file and a window will open containing the file's contents. Pressing the space bar will advance the text a page at a time.

COPYRIGHT NOTICE

Unless specifically stated, the programs on the Coverdisk are not in the public domain and the copyright remains with the author. Selling or distributing these programs without the author's permission is against the laws of copyright.

DISK EXTRA HOTLINE

0225 765086
Between 4pm and 6pm on weekdays only

Flummoxed by files? Dumbfounded by disks? Paranoid about programs? If you have a problem with the disk – and you're sure the disk is in full working order – phone 0225 765086 with your query. State the model of your machine and anything you've got attached to (or plugged inside) the computer. For problems with disks before Issue 5 phone *Amiga Format* on 0225 442244.

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Brief description..
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- ☐ **Name, address, machine type written on label**
- ☐ **Disk certified virus free**

IMPORTANT Please sign this declaration:
This program is submitted for publication by *Amiga Format*. It is wholly my own work and I agree to indemnify Future Publishing against any possible legal action should copyright problems arise.

Signed ....

Date ....

IS YOUR DISK FAULTY?

We have done our best to check that the programs on the *Amiga Format* Coverdisk are simple to use, error-free and have no known viruses. However, we cannot normally answer telephone queries on using the software, and we do not accept liability for any consequences of using the programs on the disk.

If your *Amiga Format* disk is faulty – and out of the tens of thousands duplicated, some are unfortunately bound to be – you should send it back for a free replacement within a month of the cover date to:

Amiga Format
August Disk
P.C. Wise Ltd.
Unit 3,
Merthyr Industrial Park,
Pentrebach,
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CF48 4DR

If your Amiga refuses to accept the disk, try using the DISK-DOCTOR utility on your Workbench disk to rescue it before sending it off for a replacement. Full details of *DiskDoctor* can be found in the user's manual that came with your machine.

WE WANT YOUR PROGRAM

If you've got any programs for the Amiga which you think other readers would find useful, interesting or amusing, we'd very much like to know about them.

1. Make sure your program is foolproof to use. 2. Create a file called README.DOC on the disk which explains exactly how to use your program. 3. Fill in this form, sign it, and send it without delay to: Coverdisk Software, *Amiga Format*, 30 Monmouth Street, BATH BA1 2AP. You could win a share of up to £800 prize money for the best programs each month.



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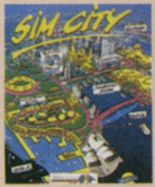
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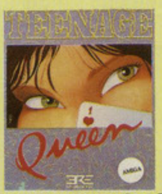
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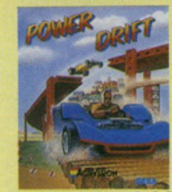


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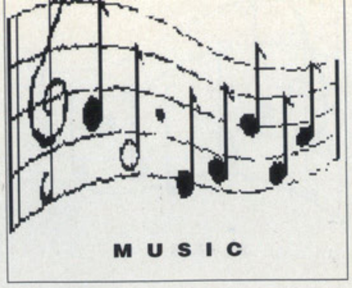
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HUNTING Tigers

Got no MIDI gear at all, but thinking about it? **JON BATES** reckons it might be more than beneficial to take a look at *Tiger Cub*, the latest offering from the house of Dr T.

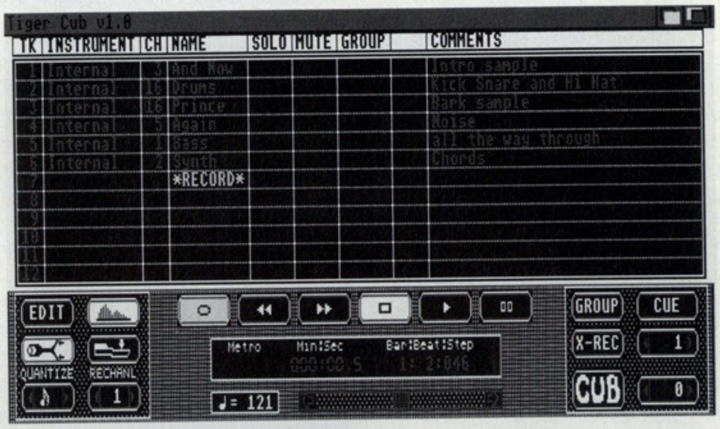
The program is billed as the 'sequencer for the rest of us' which gives the impression that it is an entry-level program. And a correct impression it is too. However, rather like one of those Russian dolls, *Tiger Cub* has several different layers and is pretty intellectual when you dive into it. We now know why Dr T bundled *MRS* in with the Commodore Amiga package; *Tiger Cub* is the much improved and slightly more expensive replacement.

One appealing factor is that *Tiger Cub* can be self-sufficient and not rely on MIDI. You can, of course, hook up MIDI instruments to your heart's content, but at its most basic level the program will use internal voices, (up to sixteen in memory and the usual four simultaneously). At a pinch you can enter notes one by one on the editing screen. More of that later.

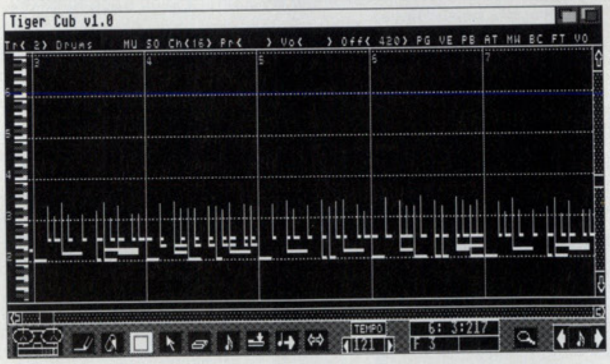
The program records and edits up to twelve tracks or instruments and, as an added bonus, you can view and print your finished efforts in standard music notation thanks to an additional software module called Quick Print. This is in fact a cut-down notation and scoring program. *Tiger Cub* is the sibling of a more detailed program called (surprise surprise) *Tiger*, which is a sort of acronym for The Interactive Graphic EditoR

The main screen. Nothing unfamiliar here and it is laid out very simply. The tracks, of which you can have up to 12, are displayed with all relevant information such as channel, instrument name and comments (good idea, this). Other columns tell you whether the track is muted, soloed, grouped together and indeed if it's playing at a particular moment – a flashing note serves this purpose.

Grouping tracks together means that at the flick of a button you can hear only the tracks you have chosen to hear, which is unusual for a budget package. One of its slight idiosyncrasies is that the MIDI channel displayed is actually the channel of the first note that has been input on that track. This is not exactly standard procedure and could prove to be confusing, especially if you have a track that has multiple channels of MIDI combined; this is another good reason for having the comments box.



RIGHT: The main screen of *Tiger Cub* with its neat and simple layout: tracks at the top and controls at the bottom.



BELOW: *Tiger's* Editing screen. The notes scroll across the grid from left to right.

Confusion

The terminology for MIDI channels used in *Tiger Cub* is a little confusing but, once you get the hang of it, is pretty straightforward. As you may be aware, the usual process is to use one instrument to play in all the MIDI data. What channel it actually puts the sounds on is usually determined by the software, regardless of the channel it was played in on.

The filtered and re-channelled MIDI information is passed on simultaneously so that the chosen sound can be played on whatever tone module. This process is nearly always done using a 'thru' switch and the channel alteration is done by the software. 'TC' has two, rather similar, icons.

There is a MIDI 'Merge' button which acts as a dumb 'thru' switch, passing on the incoming data to any other synths in the chain and recording it simultaneously without altering the incoming channel. The second button is a 'Rechannelization' feature. This passes the information on while recording it but allowing you to alter the MIDI channel. Why not just have one button that you can switch to an 'original channel' state?

I found myself having to read this section rather carefully in the manual as at one point it appeared that you couldn't change MIDI channels once they were recorded. In fact you can quite easily alter them from the editing screen, but not from the main screen, which is where the initial confusion arose.

Features

Some features of *Dr T's MRS* sequencer are retained: you need to specify the length of track you are about to record (I hate this one!) and the 'record' logo jumps to the next available track automatically. A neat feature overcomes a short track length by continuing the recording on the next available track – I guess it's tough if you've run out of tracks.

Underneath the track listing is the main control panel decked out with the familiar tape transport icons, tempo slider and bar/time counter. The tempo range and number of steps allowed per beat – the overall quantization – are alterable from a friendly 'Environment menu' which, as we shall see, alters several other features as well.

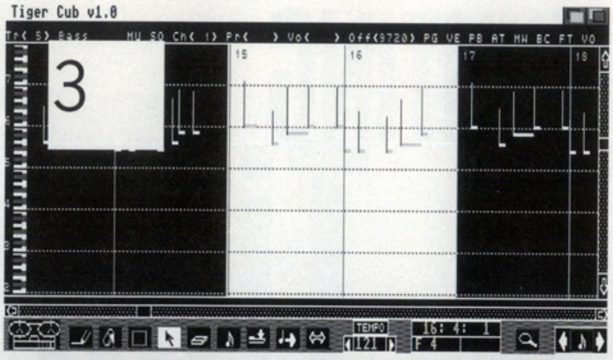
The quantize button on this panel alters notes permanently as they are recorded and it is more than likely that you would prefer to fix things up after recording. Various icons act as filters for data like aftertouch and for controllers such as pitch bend, program changes and volume; usually these are not used too much and perhaps could have been left on a menu rather than on permanent display.

Should you mess up, the 'X-rec' button deletes the last track recorded. One of the several features I was surprised to find on a budget package like this was a cue button that will loop the track between specified bar numbers, which comes in handy for practising that solo.

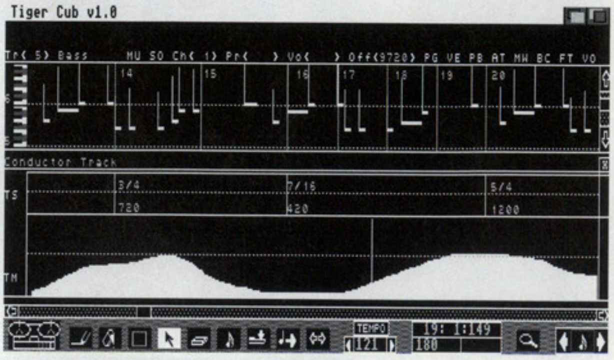
Editing

The editing is a big improvement on previous Dr T programs in that it uses a graphic 'piano roll' type of editor instead of a scrolling string of numbers. The notes themselves are presented in graphic form, scrolling (if auto scroll is on) from left to right across the upper part of the screen.

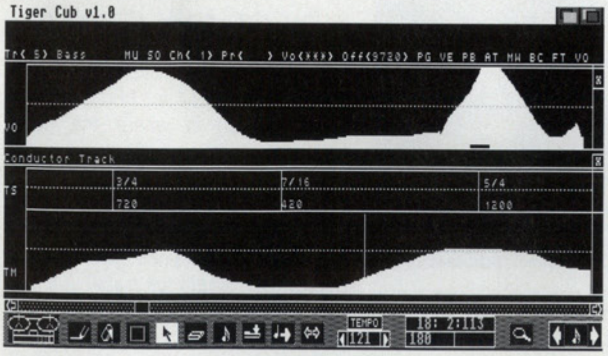
The display has a main track window and notes are displayed looking nearly like traditional notation with a stem going upwards but then a variable oblong shape streaming out from the base – the length of the oblong is proportional to the length of the note itself. An indication of pitch is given by the vertical piano keyboard along the left-hand edge of the screen which you can alter to come up with a rather odd colour combination of keys.



TOP: The white area is now ready to be manipulated, deleted or pasted elsewhere.



ABOVE: The Conductor track. By simply drawing shapes – the white areas – you alter the tempo! Note the figures above refer to complex changes in the time signature.



BELOW: The upper shaded 'mountains' are the graphic controllers, in this case set to control volume.

Editing can be achieved in several ways – you are not only editing the notes but also the controller data. The mouse is used for most editing functions but there are also options on the Edit menu and several qwerty keys are dedicated to specific editing operations. The simplest way to edit is to select an edit function from the set of button icons on the lower screen and zoom on an area or particular note. As you do, relevant information concerning the note is displayed – the exact point within the sequence, pitch, velocity or, if a drum-kit file has been selected, the name of the drum.

Under the track window are the master controls for editing in icon form. These will draw notes, paste previously stored sections, select notes for editing, define what is called a 'horizontal range' – a section that can be moved – and of course each individual note can be altered in terms of pitch, velocity, length, and time, a separate icon toggling each function.

Notes can be dragged about either individually or in a group and deleted, cut and pasted in the same manner. As you may guess, the draw option lets you put notes wherever you want and you can hear them, if you want to, at the same time.

The initial velocity for each note is set in the Setting menu. The function keys come into play here as they will insert, delete, play staccato or legato and play what you have just written. Even more thoughtful is the option to assign certain MIDI controller numbers to these functions so that if you do have a MIDI keyboard you can perform the whole operation with leaving your seat. You can also record on the graphic page in the same way as on the main screen with only a few minor differences.

The real surprise with *Tiger Cub* is the graphic editing and drawing feature used on the control tracks. Before you reach for the Pseud's dictionary, all this means is that controls such as volume, pitch bend, modulation, stereo balance and a whole host of others can be controlled by drawing graphic shapes on the screen with the mouse.

There is also a track that enables you to control the tempo of the playback in much the same manner and also cope with very complex time changes. This is something that has only been introduced recently on rather up-market professional sequencing software and to find it on software selling for under £100 is rather incredible.

The control track runs underneath the notes window and you can work on several and, of course, edit them. It puts very professional touches within the budget of most of us. Other goodies that *Tiger Cub* sports are the drum kit files – these store the note numbers that correspond to the drums and of course you configure it to suit whatever drum module/machine you are using – when you are editing the drums on screen the name of the drum will pop up when you click on the note.

You can also store instrument files – these name the instrument that you are using and when you change the instrument in mid-track by using a program change number. The software looks at the instrument file and pops in the actual name of the sound. You can have up to six banks of instruments in a file and each bank is specified by the MIDI channel it uses. This will be very useful with instruments that have anonymous front panels and even more anonymous LCDs that display only numerals.

The finale to this round of up-market features is the scoring module. Though basic, it covers as much as you would expect from many packages with full score and single staff display, choice of clefs and drum track, specified ties, key signatures, quantization and joined stems.

Certainly more than enough for a quick hard copy reference and it has just enough edit menu facilities to massage any glitches out of the displayed result. It prints the results out via the standard Amiga printer driver but sadly it is permanently tied to *Tiger Cub* and will not work with other software. Sadly, the version that we had failed to load up the Quick Score module and crashed, but it must be remembered that review copies are first releases and the ones that reach the shop will be fixed.

Tiger Cub is an excellent entry-level program that is easy to get to know. It has features that are quite exceptional for it's price and rather than complicating the program they actually make it much easier to work with. The accuracy and versatility of its recording and editing make it well worth the money even without its scoring and notation module. A very friendly and obedient Tiger that will make a fine family pet.

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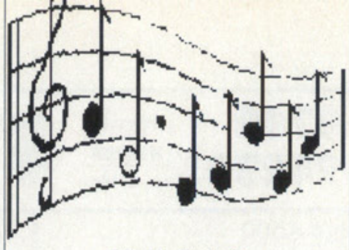
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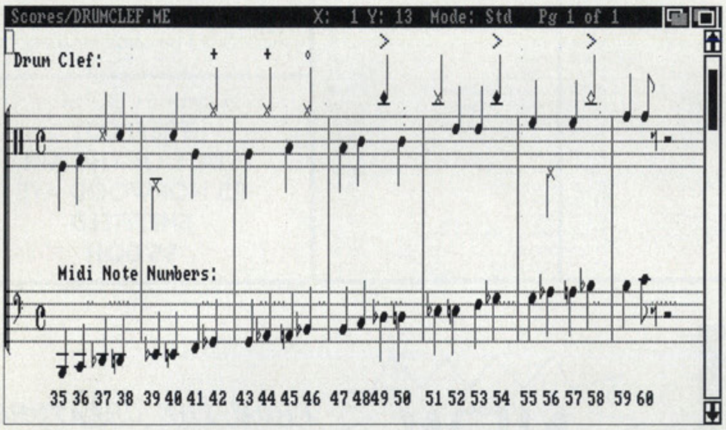
Copyist APPRENTICE

And we've just time for a quick look at more scoring: *Copyist...*

Although we had a quick look at this program in Issue 11 I thought that, since *Tiger Cub* does simplified scoring, another quick glance at this budget scoring package might be appropriate. They are compatible, which is not surprising since *Copyist* will accept a variety of files including MIDI files, SMUS and files created by Dr T's own sequencing software.

The program works on two levels. It will function as a stand-alone music typewriter, where you put each note and symbol in individually, and it will also work as a transcription program accepting all the various files mentioned above.

In general the program has as complete a range of music signs and symbols as you could ever wish for. Although you can use the menus to enter each symbol and sign, it is in fact far quicker to use the qwerty keyboard as every action is duplicated by the keys. The keys that you use are fairly instinctive, usually taking the first letter of the symbol.



LEFT: Copyist supports drum notation...

This is probably a legacy from its first incarnation which was for the IBM PC. It has a problem, in that when you choose the medium resolution you can see everything quite clearly but you can't see more than three staves at a time; although you can scroll up and down the page. Put it into hi-res and the screen flickers and the staves are very squashed up making them unintelligible. Other factors against *Copyist Apprentice* are that it is rather slow in operation and overall the display is rather spidery and thin.

Having looked on the black side, *Copyist Apprentice* is certainly full of everything to score programs out with - all notes, bars brackets, clefs, expression marks, text with a wide choice of typefaces, and absolutely tons of help all over the place – you can even load in score pages that give you on-screen help concerning the ranges of orchestral instruments.

It has dedicated drum score pages and can cope with guitar chords. I think that the problem is that you need to take time to learn all the commands. Dr T include templates to stick over the keyboard to make life a little easier in this respect. Just like any good text processor you can cut out and paste any part of the score, flip from page to page, and also insert sections.

As a transcription service it is definitely much improved. You convert your original file to a Stream file, the special format the *Copyist* requires. There is a whole page of options which you have to complete concerning the appearance of your music: how the notes are to be displayed with stems and beams, what quantization should be used on the notes, how many bars per line and staves per page, should rests be included, is a split point required if it is a piano track and so on.

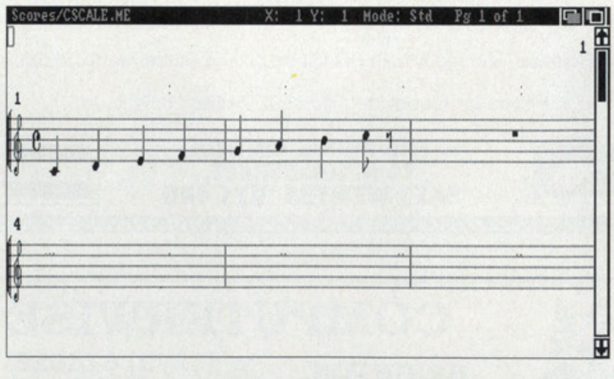
Having done this, it is not too arduous a task to go through the transcribed file and add expression and phrase marks and whatever else you need, since *Copyist* has everything on hand. This is a much faster and more rewarding way to work and is probably the best use that the program can be put to.

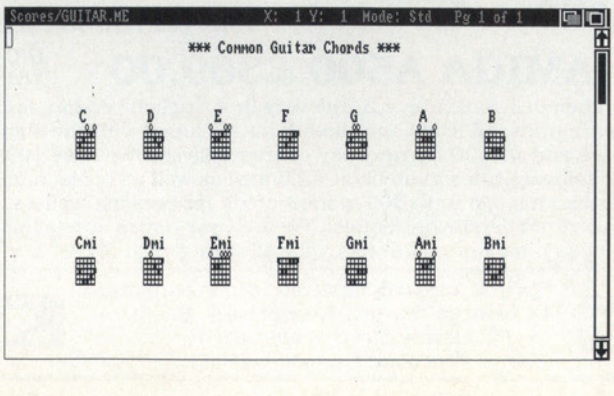
I think that although *Copyist Apprentice* has lots of good features it tends to fall down on speed and display, these being slow and scrawny respectively. It would have been nice to not only print out fill scores but also to be able to select individual parts as well.

However it is, at the moment, a very cost effective and comprehensive package if you can take your time to get round it. *Copyist* runs with a wide variety of printers including Inkjets and laser printers and the final appearance should be rather better than the screen display. There is a Professional version of *Copyist* which will set you back just under £300 with greatly enhanced features and details. At just under £80 there is no competition that comes anywhere near this software.

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...as well as plain staves (BELOW) and even those odd guitar chords (BOTTOM).







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Rainbow Islands
from Ocean

This follow up to Bubble Bobbie looks set to be as much of a hit as Ocean's last cutesy game, New Zealand Story. It combines colourful visuals with frightening-ly addictive gameplay, with the result that you end up with one hell of a game.
Graphics have been downloaded from the original arcade version and the moves are just the same. Lead Bub and Bob to the top levels by firing rainbows into the air and then climbing them. When you reach the top of a plat-form, you can collect thousands of bonus points. There are seven islands to complete, each one more challenging than the last.
"Graftgold's ST Version of Rain-bow Islands is one of the best coin-op conversions to have appeared in along time" Maff Evans, ST Format



Rainbow Islands

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from Mindscape

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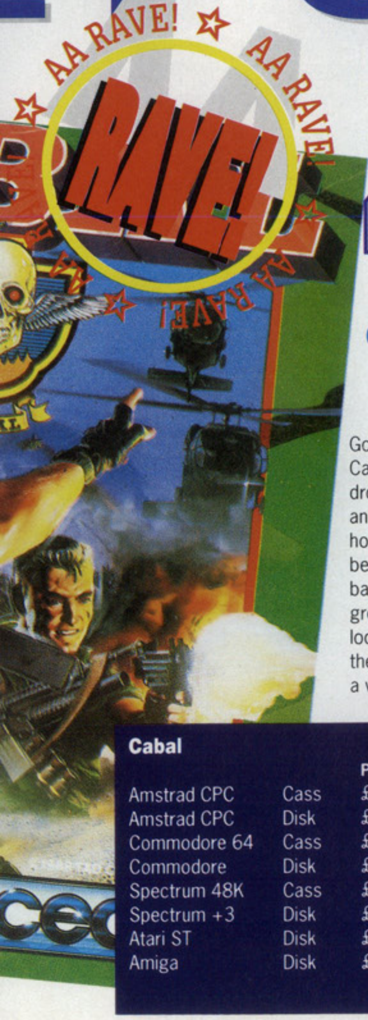
Black Tiger
from U S Gold

US Gold have had major hits with Strider and Ghouls 'n' Ghosts. Now comes their latest horizontally-scrolling action game, Black Tiger.
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If you're a fan of horizontally-scrolling action games, you'll love this one.

Black Tiger

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4

Cabal from Ocean

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TFMX

MUSIC REVIEW

Pump UP THE Music

In the world of games, one thing that has benefitted from the power of the Amiga is the music. MAFF EVANS looks at a new tool to help games designers to add soundtracks to their creations.

Designing games is far from an easy task, as any programmer will tell you. With the arrival of AMOS this exciting world is no longer unreachable, even for those who wouldn't know the difference between a bitplane and a microwave oven. But once you've got your graphically wonderful spaceships flying smoothly around dealing laser death to colourful aliens, how do you add that extra exciting element? Simple. You give the game a stirring soundtrack.

Various tools are available for creating music for games and demos, many of them in the Public Domain. Unfortunately, most of these systems are either overly simplified or require a great deal of knowledge on the programming side of things. German programmers Chris Hulsbeck and Peter Thierolf have developed a way of creating game music that manages to avoid both these traps, in the shape of TFMX Soundtool.

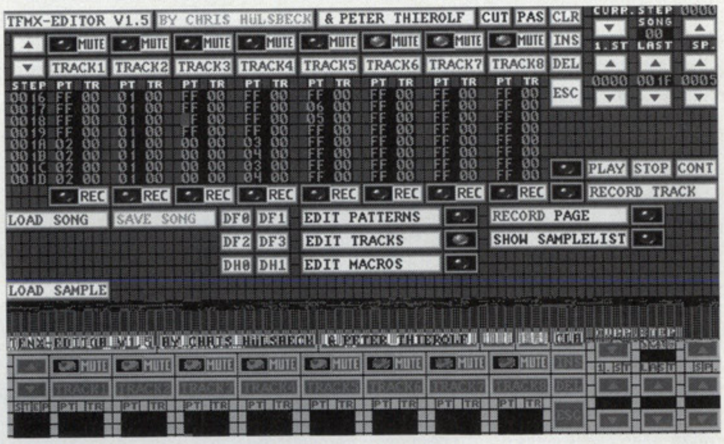
TFMX is a completely integrated music programming tool that allows you to build a complete masterpiece from patterns using various samples. Your tune can then be saved out and played independently of the program using the TFMX player. Thus you can have a piece of music playing behind your demo or game, or just as a background to aprogram, by simply calling the file up from your listing.

Back to Life

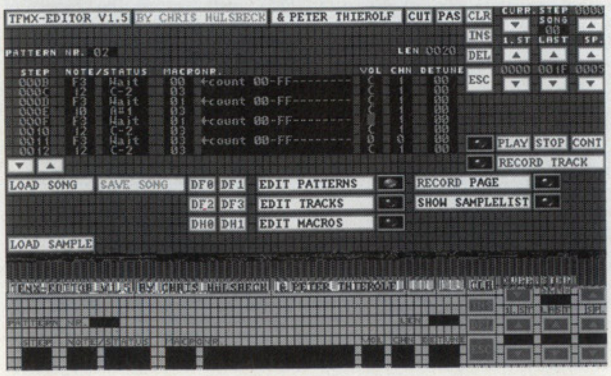
What you actually get is the TFMX disk which contains various versions of the editor (for machines with different memory configurations), the music player and a set of demo tunes, a comprehensive manual and a protection dongle which plugs into the joystick port.

Loading up the disk gives you a rather nice demo tune showing what the program is capable of producing, complete with atmospheric, breathy samples and snatches of Soul II Soul's "Back to Life".

Once you have got past this and loaded up the editor you are presented with TFMX's main track screen. All the functions are carried out either by clicking on buttons or by entering values at the cursor. This saves the need for any complicated portrayal of scales and staves for those with little musical experience.



RIGHT: The main track compiling screen. This where you can patch the patterns together to form a complete song



BELOW: This shows the Pattern Editor. The note values simply trigger beats, while the WAIT commands set when they are to be played

The manual gives a step by step introduction into the workings of the program using a tutorial piece, to allow you to get to grips with the feel of the pattern and track editors.

As long as you follow the tutorial and don't try to run before you can walk, the system is fairly simple to use. Simply load up a sample from the LOAD SAMPLE page, assign it to a macro and you can start writing your tune. This is done by building up a pattern and then using the patterns to construct a complete song on the track editor.

MacroComputing

One of TFMX's main strengths is the power you have over the use of samples. Once you have loaded up a sample, you can create a macro to hold the sound's information – such as start location, sample length, and whether to play it as a one-shot sample or as a loop.

More complex manipulations can also be carried out, such as vibrato, portamento and envelope shaping. The more adventurous can even tell the macro to jump into another sample and then return to the original. This can provide some strange sounds, including a very impressive, spasmodic 'cut-up' effect on vocal samples (a technique I'm particularly keen on).

Even if your original sample doesn't fit into the required format (for example your beautiful choir sample is off key and gets cut off by an orchestra blast) you can assign detune values to get the key perfect and set cut-off values so that the sample will finish playing rather than

TFMX

MUSIC REVIEW

being cancelled out by the next note. This amount of flexibility is unsurpassed, even in high-end Amiga sequencing packages, and gives an unbelievable ammount of freedom in using sounds.

Jigsaw Music

Now that you've got your samples loaded and the macros set up, it's time to do some music-writing.

Flicking into the pattern editor presents you with a window displaying all the commands in the selected pattern. Sequences are built up by entering a hex value to designate a note, along with the sample macro number (which sets which sound the pattern will play), the output channel to use (so that sounds stay separate) and the note volume.

Following each note, a command must be entered to set when the next note is played (either a delay, or wait for the current sample to end) or to decide when to end the sequence. The patterns are of a variable length – although if the pattern is short it must have a STOP command set at the end, so that the sequencer doesn't get confused and stop the other patterns from playing – and can contain any number of macros – you can even have different sounds playing on the same beat by leaving out the pause between them.

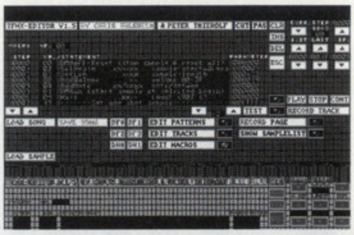
Once you've created your pattern, you can put it into the song on the TRACK EDIT page. To play a pattern, all you do is type in the number of the pattern you wish to be played on the step line you wish it to appear, much in the same way that a drum machine builds up songs.

Eight tracks are available, which rather than playing on eight channels (which would be a surprising feat, since the Amiga only has four), allows you to place eight patterns on each step. However this doesn't mean that eight patterns choc-a-block with notes will all play together; you can still only play four notes on one beat! The track page also allows you to set the speed and the starting and stopping positions of the track.

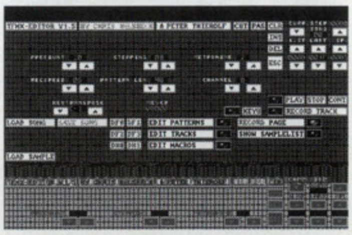
Just for the Record

On this page you can also set up a pattern ready for recording. All you do is put a clear pattern on one of the tracks and click on that track's record icon. An 'LED' will illuminate to tell you it's ready. Now you can go to the track page and set up the 'count in' and metronome speeds.

Hit the RECORD button and press Caps Lock to put the sequencer in 'test' mode. Hammer away at the keyboard to rehearse your part and press the Caps Lock key when you're ready. Now play your piece and hit the left mouse button to finish. Now you can go to the pattern editor to correct your mistakes (mistakes? It's that 'human' feel, guv'nor!) The 'record' feature allows those who have no confidence in remembering the relevant values of notes to get tuneful pieces into patterns without bashing through a laborious 'trial and error' process.



RIGHT: All samples have to be assigned with macros, which hold all information on speed, tuning, volume and looping



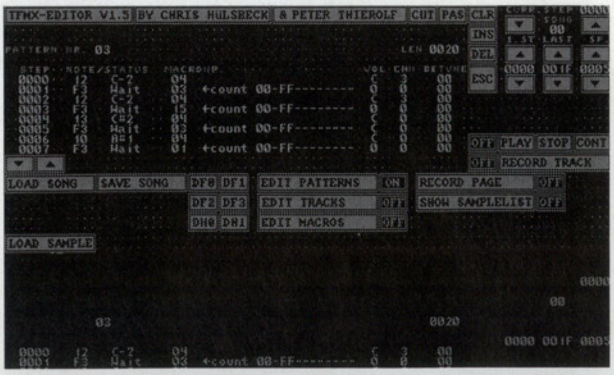
RIGHT: The Record Page is where the settings for realtime pattern recording are determined, from record speed to metronome rate

All in the Game

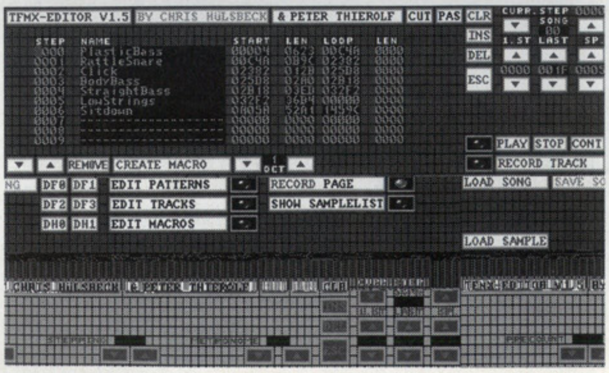
So you've set up your samples, programmed the patterns and constructed a song. All that's left is to stick it into your game.

Once you've saved out your song, all you have to do is simply copy the TFMX player into the C: directory of the disk containing your program, and enter the command to call up the tune via the player in your listing. You can compile a number of tunes in one file, and call up the relevant song from within the file.

This means that you can have a start-up tune, an end-of-level tune and a 'game over' tune all in one file to save disk space and still call them up individually. You can also define how the tune will end, either by pressing the left mouse button or the escape key, or by a separate command (after all, you don't want to have to press the escape key at the end of each game, do you?). TFMX will run easily from all popular languages, including BASIC programs, C listings and even machine code, so you can incorporate music with relative ease.



BELOW: TFMX can be run with a four-colour editor, freeing valuable memory for samples and song program data



BOTTOM: A whole list of samples can be loaded in most formats, from basic RAW data to ready-structured IFF files

Let's get down to it, Boppers!

TFMX Soundtool is the most comprehensive and powerful game music creator yet to appear on the Amiga. The sheer flexibility of sound use and the ease of pattern programming completely overshadows similar programs, including the now well-established Game Music Creator and even Sound Tracker.

There are a couple of quirks, however, such as the annoying habit that TFMX has of hanging up when you attempt to record on a pattern that hasn't been cleared. The record feature starts up okay, but press the mouse button to stop recording, and an error message flashes up to tell you that the pattern is clear. Press the mouse button to continue and what happens? The record feature starts up again. Press the mouse to stop and you get the message again... argh!

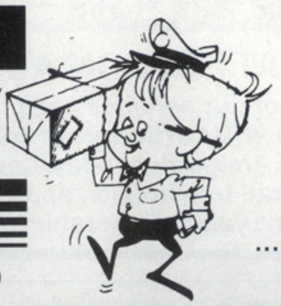
To be fair, the manual carefully outlines how to go about each feature, so mistakes are at a minimum, and helps to explain each feature simply, but with enough detail so that you can get to grips with all the program's functions. Having said this, a great deal of thought has to be applied to achieve decent results, and creating tunes should not be taken lightly by occasional dabblers. TFMX is described as a programming tool, and as such is superb at it's job.

Chris and Peter promise further enhanced versions of the program due this winter for around £100, including such delights as built-in sampling and MIDI features. This could put TFMX well out of the reach of competitors for some while!.

If you write games or demos and want to add music, but can't face the thought of grappling with the Amiga's sound chip directly, get hold of TFMX and you won't be sorry!

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MIND YOUR Language

There are so many programming languages around, that it's hard to know which is the one for you. **MARK SMIDDY** sorts it all out.

In days long past, when 8-bits ruled the earth, the two languages in common use were BASIC and assembler. Even these split into many varied dialects, but BASIC was far the most popular. For better or worse, those days have gone.

The arrival of the Amiga has seen a new generation of languages sneaked into the home environment, some of which were previously unseen outside universities or scientific institutes, most of which were unable to run without the sheer processing muscle of yesterday's mainframes. Even familiar titles like BASIC have silently undergone a complete revamp to rival more accepted languages in terms of power, complexity and performance.

Scale of the Problem

The problem, if it is a problem, was and still is this: most home computer programmers are unfamiliar with doing anything on a large scale. Previously the vast majority of home computers were limited in terms of memory size and general complexity.

Few people outside industry or research institutes had any idea what multitasking was, let alone how to program in such an environment. Their minds were very firmly fixed with the idea of one computer, one job. Even the chosen few had only dabbled with simple interupts afforded by processors like the 6502 and Z80. Now they were faced with a computer capable of handling many tasks at once without so much as blinking.

For many, the very idea of an operating system interfacing between them and the hardware was alien. Many had come from machines like the Spectrum where the operating system was just a part of the BASIC ROM.

Even those familiar with the idea of a separate operating system – ROM based or not – were flummoxed by the sheer size of the Amiga's. At 256K it was 16 times the size of the one employed by the once all-powerful Acorn BBC Micro. And WIMP interfaces? The whole suggestion of point, shoot, and let the computer get on with it was almost obscene.



Illustration: Sally Gaden

Mind Your Language

When faced with a machine as complex and comprehensive as the Amiga one question is nearly always raised; "Do you use high-level or low-level languages?" This is an area where the user is spoilt for choice.

At the lowest level, the machine features a set of very complex custom chips which MUST be treated with respect. A programming bug here will not cause the machine to catch fire – as used to be rumoured with an ancient Commodore micro – but it can cause subtle bugs.

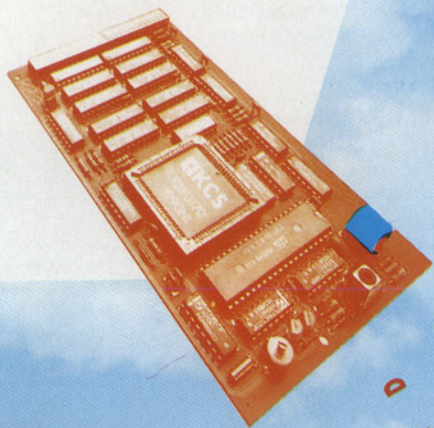
Moreover, subtle bugs can occur on seemingly identical machines – more than one game has come to grief by working fine on 90% of Amigas but failing on the other 10%. This problem is further expounded by the ever expanding variety and configurations of machines available. Not only in terms of memory, but extra and faster processors, new system ROMs just around the corner with a completely new version of Intuition and a revised set of custom chips.

At higher level, when programming applications, for instance, there are even more things to consider. Not least, all good Amiga applications should be capable of interacting correctly with the rest of the machine. At the very least this means "hitting the metal" (directly accessing the hardware) – a common practice on 8-bits – is right out.

Moreover, a correctly written Amiga program MUST be able to coexist with anything else that happens to be running in the machine. This has some major implications for the programmer. Not only must he consider the need of his own programs but also correctly arbitrate for use of any hardware (or virtual hardware, like screens) the program may require.

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BASIC has become synonymous with home computing and, despite the efforts of many computer professionals, has managed to gain a foothold and a huge following that simply won't go away. It was intended as a gentle introduction to programming; indeed, the acronym BASIC means Beginners All-purpose Symbolic Instruction Code, but of course you already knew that.

The idea of BASIC is to remove the complexities of conventional computer programming by providing an environment devoid of almost any form or structure; which is, according to experts, where it falls down.

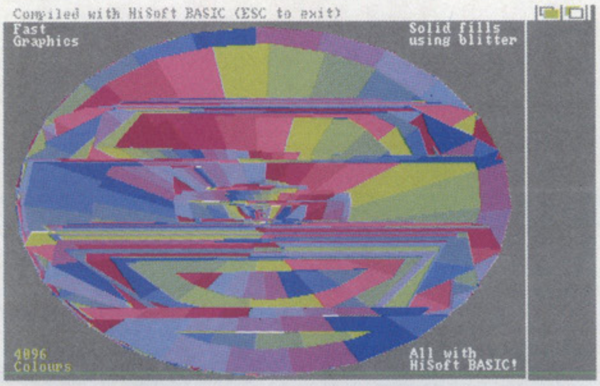
This is, of course, the very feature which has endeared it to so many over the years. It is friendly, easy to learn, simple to program and invariably simple to debug. BASIC listings tend to be easy to read and understand. Also, the extensive error checking provided by most interpreters (later, compilers) mean it is the language least likely to crash the machine.

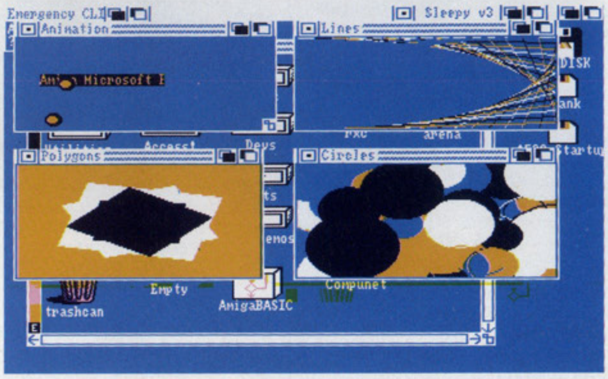
For the reasons outlined here, the Amiga is very well served with versions of BASIC varying in quality from the sublime to the downright appalling. There are so many BASICs there isn't room to fit them all in here; this is a selection of the more common ones.

BASICS PROGRAMMING LANGUAGES

AMIGA BASIC
Free with the Amiga

Fits, regrettably, into the latter category – appalling. Regrettably because it is the one supplied with the machine and, therefore, many people's first impression of programming the machine. It has a slightly chequered history; suffice to say the version on release at the moment is based on the industry-standard Microsoft BASIC. For "industry standard", read easily convertible but crude.





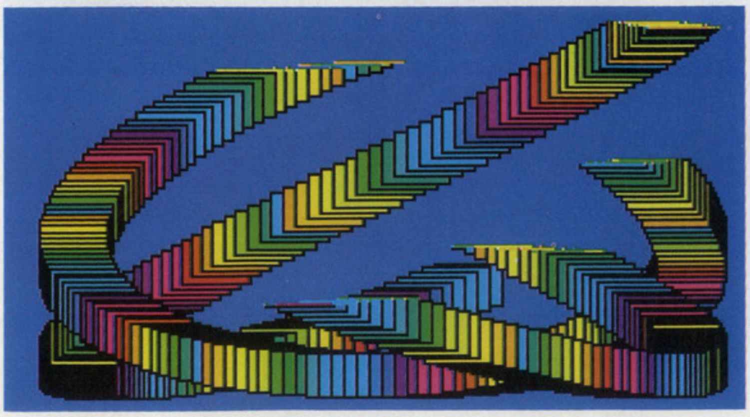
TOP: This nice HiSoft BASIC demo came to grief when subjected to the editor!

ABOVE: Even this AmigaBASIC demo looks paltry when you consider the machine's potential.

For openers, the authors have chosen to use Intuition's GIMMEZEROZERO windows. This bit of Amiga mumbo-jumbo means in effect the cartesian (geometric) 0,0 co-ordinate starts at the top right-hand corner of each window's drawing area. Normally, programmers have to correct for this in software. Since Intuition does this automatically, the net result leaves window updates VERY slow.

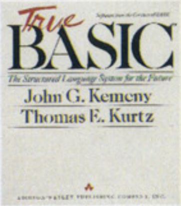
Next up, AmigaBASIC lacks any form of decent file request. The poor beginner is left instead to cope with a simple Intuition string gadget. Taking nothing away from Intuition, this would be fine – apart from the fact that it leaves beginners floundering with the complexities of AmigaDOS.

As a final nail in AmigaBASIC's pine overcoat (with optional silk trimmings and polished brass accompaniment) it is slow – very slow. True, by comparison to other interpreted BASICs it is reasonably fast – but in terms of pure performance it makes the Amiga – in evry other way, a very powerful machine – seem tedious.



LEFT: Oops! This lissajous figure in True BASIC looked great on my screen!

True BASIC
Addison-Wesley, Price N/A



Comes from Kemeny and Kurtz – the inventors of BASIC, no less. After they had seen their language called every rude name possible and criticised for lacking structure (even though real structured programming was not "in" when BASIC was created) they sat down and redefined the language to bring it more up to date.

The result of this effort is True BASIC, and a very nice job it is too. While it retains the feeling of the BASIC language and remains easy to learn, it is capable enough to produce large applications and still easy to learn. True BASIC is compiler-based which means syntactic buggettes – like typing errors – are caught long before the program is run properly. The same is true of all compilers here, incidentally: this is not a unique feature of True BASIC.

True BASIC is supplied in typical Addison-Wesley style – on two disks with two voluminous manuals, all packed in a giant box. One manual explains True BASIC Amiga in depth, the other is a reference guide. Both use a large font which is kind to the myopic. Kemeny and Kurtz call it "The Structured Language System for the Future." How true this is in practise remains to be seen – but judging from documentation alone, it is the logical progression from those first BASICs.

HiSoft BASIC
HiSoft, Compiler £79.95 Extend £19.95



Comes as some salvation to AmigaBASIC users because it is largely compatible with it, also borrowing some features from Microsoft's PC Quick BASIC. The main difference is HiSoft BASIC is compiled, resulting in

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Access

VISA

programs which run up to (it is claimed) 50 times faster than they would in standard Amiga BASIC.

Hampered by the compatibility with AmigaBASIC, HiSoft looks sluggish when compared on paper to its main competitors, but overall manages quite a reasonable speed. The main cavil with the system is the lack of an interpreter: programs must be tokenised and compiled before they can be tested. This adds unnecessarily to the development time.

Like most modern BASICs, HiSoft lacks line numbers, but the formatting of loops and so on is up to the programmer. Some editors do this automatically; it's all a matter of taste. The excellent editor is borrowed from Devpac – or is that the other way round? Although only offering single-file, single-window editing, it manages to be fast and effective. The curious system of using function keys for block marking could be better, though.

Unlike GFA BASIC (below) it features a simple interface to Intuition, although this must be criticised for lacking anything more useful than screens, windows and menus. This might seem useful enough, but in practical applications it can hamper the programmer and, inevitably, the user! To be fair, HiSoft have tried to remedy this by offering an extension to the language – called Extend. What they forgot to add was support for the ever-useful proportional gadgets. These crop up everywhere, from *DPaint*, to *Sonix – even Sleepy 3*! Their absence is definitely a mistake.

GFA BASIC
GFA, Price varies

Definitely not compatible with anything other than GFA BASIC. When Version 3.0 first appeared, it was so full of holes it was a wonder it managed to survive the furious press critiques it received. Nonetheless survive it did, and GFA finally have a solid product.

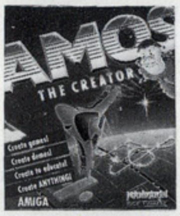
Unlike several other third-party BASICs mentioned here, GFA BASIC is interpreted: those wanting a compiler have to pay another thirty quid for the privilege. The suggestion GFA is interpreted should not be taken as meaning it slow – far from it. With this release, GFA have demonstrated just what can be done with a "mere" interpreter and extracted performance previously unseen from the language.

Compiled programs are compact and very faaaaast! The compiler documentation even features a section on optimising raw BASIC code to make it even faster still. However, despite of what GFA might suggest, this section does require at least a rudimentary understanding of 68000 machine code to exploit the compiler to the full.

GFA's editor is a strange, though powerful beast and the language itself has an unusual but well thought-out syntax. Notably line numbers have gone, as have multi-statement lines. This, coupled to the automatic indenting of loops and so on, forces programmers to produce clear, readable and logical code.

More unusual still, GFA supplies a complete interface to all the library functions found in the ROM. Common functions like opening Intuition windows and screens have their own calls, simplified for the beginner but powerful enough for the expert. From a programmer's angle it is difficult to see how long C compilers will remain in favour, since even complex programs would be easier to produce in BASIC's protective and friendly environment.

AMOS
Mandarin, £49.95



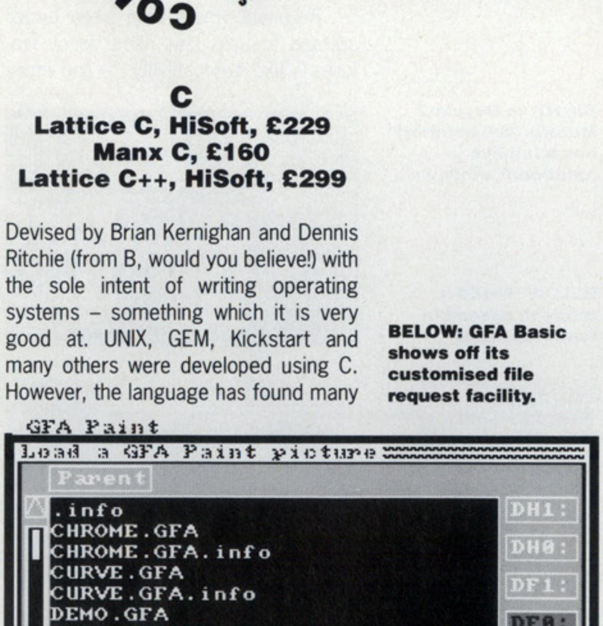
From Mandarin Software comes the long-awaited follow-up to their hugely successful *STOS* for the ST. *AMOS* is so new it deserved the full review now showing on Page 75 of this issue.



C
Lattice C, HiSoft, £229
Manx C, £160
Lattice C++, HiSoft, £299

Devised by Brian Kernighan and Dennis Ritchie (from B, would you believe!) with the sole intent of writing operating systems – something which it is very good at. UNIX, GEM, Kickstart and many others were developed using C. However, the language has found many

BELOW: GFA Basic shows off its customised file request facility.





more uses than the one for which it was originally intended. This is the case with many languages once they become accepted – the few which have fallen by the wayside have done so for good reason, and remain unnamed.

The main advantage of C – as defined by its lovers – is its portability. In theory at least, a C program can be written on one machine and easily converted to run on another. This advantage has been whittled away somewhat, recently, with the advent of Modula 2 which is also extremely portable; and also, of course, has been reduced by WIMP systems. By definition, WIMP-based systems tend to be very machine specific, hence reducing the portability of software.

There are two main C compilers available for the Amiga: Lattice and Manx. Of the two Manx – being the cheaper – has the larger (or is that louder?) following, but Lattice appears to have the better back-up.

As main distributor HiSoft was keen to point out, Lattice is ANSI compatible and can produce code running more than 60% faster than Manx. But what's a few benchmark results among friends?

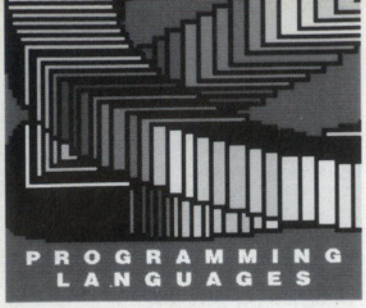
Pascal
MCC Pascal, Metacomco, Price N/A

Invented by Professor Nicholaus Wirth as a teaching language and named after the French philosopher, mathematician and physicist Blaise Pascal. The only Amiga version of Pascal has become, sadly, something of a rarity since the demise of Metacomco. Unless someone else picks up the baton, Amiga Pascal will become a thing of the past when existing supplies dry up. Those wanting to try this fascinating language should act now.

Modula 2
Benchmark Modula 2, Price N/A

Another invention of Nicholaus Wirth, Modula 2 shares many of the features first devised for PASCAL but without some of the drudgery of type checking and exacting syntactic specification. Modula is a logical progression from PASCAL and is seen by many as been the first in a new generation of computer languages.

Proof of this new-found usefulness comes in the form of Gold Disk's excellent *Advantage* spreadsheet which was developed in Modula, as opposed to the more usual use of C.

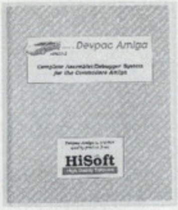


In order to gain the greatest speed from any computer, there is no option but to resort to the complex world of assembly language; and on the Amiga this means the 680x0 series.

At first glance assembler looks complex – because it is. More to the point assembler is long-winded and very prone to subtle bugs which cause spectacular crashes. A good 68000 development system MUST feature a debugger – machine code programming without one is like playing Russian Roulette with six bullets.

ASSEMBLERS – PROGRAMMING LANGUAGES

Devpac 2
Devpac Amiga, HiSoft, £59.95
Devpac Developer (1Mb+), HiSoft, from £199



From HiSoft comes the sibling to the hugely successful Devpac development system widely used by professional games programmers which should be a recommendation in itself. Many regard it as being the de facto standard by which all others must be judged – surprisingly there are a few pretenders to Devpac's crown. The system is supplied in three parts – Editor, Assembler and Monitor – and comes on two disks with an excellent manual.

The most impressive feature of Devpac 2 is the way the whole thing has been thought out. From within the editor (a good value package in its own right) it is possible to assemble the code to memory and immediately test it either at full speed or from the debugger. This reduces development time enormously over the over more conventional systems of edit, then assemble, (link), debug – where each part of the system is a separate entity.

For those wishing to use Devpac as part of a larger development system, it can produce linkable code which could be joined in a modular form to compiled C, Modula 2, or even other assembly language modules. At around 70,000 lines per minute the assembler may not be the fastest, but considering Devpac has probably the best multitasking debugger available for the Amiga (and a massive following) it represents unequalled value for money.

ArgAsm
Argonaut, £79.95

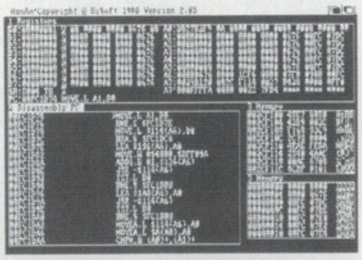
Comes from Argonaut Software, the home of *Starglider* and an impressive stable which can be expected to produce something special. Which is precisely what ArgAsm is, boasting a multiwindowed editor and claimed assembly speed of 250,000 lines per minute. It should have taken the programming world by storm, knocking Devpac straight off its perch.

The multi-windowed, multi-file editor is a joy to use – far better than Devpac's. Scrolling text in windows moves at blistering pace, giving some credence to the claims and showing it was written by people who consider speed of paramount importance. Also, like Devpac, ArgAsm can produce linkable code to use with other languages.

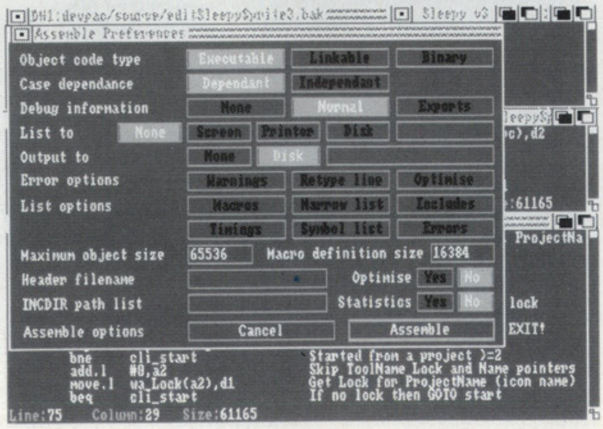
As a pure assembler, ArgAsm knocks spots off the competition in terms of performance alone; by no means enough to endear it to the buying public. The complete lack of any debugging facilities and heavy memory requirements (above 1Mb) are serious mistakes; even the dated K-Seka has a debugger. Argonaut use their own debugger in-house but refuse to release it on the grounds that its advanced facilities would only serve the needs of pirates. Fair comment, certainly – and a sad sign of the times.

Argonaut would have been better advised to think less about fancy features – like compatibility – and more about releasing a product that worked. Yes, it's bugged: it sometimes fails to produce runnable code at all. ArgAsm could have been a masterpiece. It isn't.

RIGHT: In Devpac2 MonAm (the monitor) has a full five functional windows...



BELOW: ArgEd is ready to assemble – loadsaoptions!



K-Seka
Kuma, Price around £50

Mentioned here for the sake of completeness – even though Abacus' Assempro and Cape were not available. Seka is getting long in the tooth, but nevertheless a sizable number of programmers still swear by it – and at it too. It is capable enough – the ST and Amiga versions of *Wizball* (remember *Wizball*?) were written using it. The problem with Seka is it looks dated and the author has refused to update it, discouraged no doubt by the excellent competition. Even so, Seka wins hands down on price alone and it does have a debugger (of sorts).

The most notable features of the package include the weird editor – reminiscent of Ed, and the curious command structure! Assembly is very fast BUT this is definitely not a package for producing applications since no INCLUDE libraries are supplied. This means every _LVO (Library Variable Offset) must be looked up in the reference manuals. A tedious operation even on a simple system like an ST, on the Amiga this is incomprehensible. Similarly, the documentation is rarefied in typical early Kuma style.

Assem
Metacomco, Price N/A

Not unlike Kuma, the recently-demised Metacomco were one of the first to produce an assembler for the Amiga; like Seka, it looks crude in comparison to today's offerings. In its favour, Assem does use standard macros and can include files. From here it's downhill all the way. The editor supplied is Ed: suffice to leave that alone, *Cygnus Ed 2.0* is a better bet altogether. There is no debugger and the program only produces linkable files. Worst of all, Assem is supplied with ALink – this should also be replaced with BLink. Or better still, buy something else instead.

THE FRINGE – PROGRAMMING LANGUAGES

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AC FORTRAN, £295

The great grandfather of high-level languages and arguably the precursor to BASIC. Certainly much of the structure of FORTRAN can be found in today's

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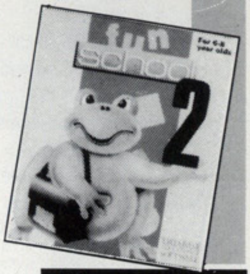
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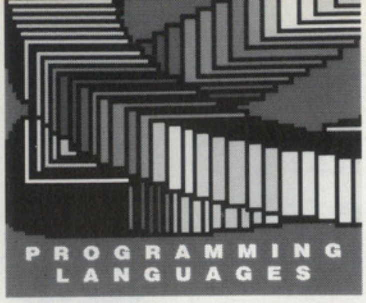
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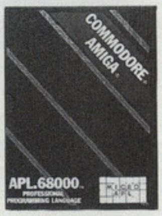
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BASIC. The name is an acronym for FORmula TRANslation language which describes it very well. FORTRAN appeared very early on because it was devised for scientists who needed to be able to write programs which expressed their formulae in (more or less) simple English, something which was impossible in other languages around at the time.

Although FORTRAN is still regarded very much as a scientific language – the stuff of minis and mainframes – at least one software house has seen fit to produce a version for the Amiga. AC FORTRAN is available from larger suppliers including HB Marketing. It looks very promising indeed.

APL
MicroAPL, £99.95 basic version, £299.95 with 68881/68882 support and faster libraries



Must rank as one of the most peculiar languages around, since the major body of its definition relies on a superset of special symbols unique to it. The name APL comes from 'A Programming Language', probably because its inventor, Dr Kenneth Iverson, couldn't think of a better way to describe listings which amount to little more than runic diagrams. Perhaps the ancient Egyptians invented computing after all?

Like many fringe languages though, APL has a fiendishly dedicated band of followers – some of whom are responsible for bringing this ISO standard implementation to the Amiga.

REXX

Is a relative newcomer to the computing scene since it appeared as recently as 1985. It should be made clear from the outset ARexx (William Hawes' Amiga implementation of REXX) has not been accepted as a language in its own right, but adopted as a script language for controlling other applications. However, this should not be seen as taking anything away from ARexx, since it is without doubt a very powerful language, and quite capable of producing stand-alone programs.

Very briefly, the language is not entirely dissimilar to BASIC – although this may be doing it some injustice. It comes on a single disk with a clearly written manual explaining the implementation and the differences between Amiga REXX and Colishaw's original specification. Beginners are advised to refer to this for a better explanation.

ARexx programs use a resident process – that is, a program sitting in the background which applications use to communicate with ARexx. ARexx programs themselves are interpreted at run time in much the same way as one might start a CLI program.

Bluntly, ARexx is best viewed as a means to an end: that is to customise other software packages and produce, in effect, meta-applications based around them. Typical examples of software supporting ARexx interfaces are *Superbase Professional* (database), *Cygnus Ed* (text editor), *SuperPlan* and *Advantage* (spreadsheets). Since Commodore have been far-sighted enough to include ARexx with Workbench 2.0, this list should get longer; but only time will tell.

LOGO
Commodore £49.95, included in 'Class Of The 90's' bundle



Quite where the name LOGO comes from is unclear. Inventor Seymore Papert designed it – like PASCAL – primarily for teaching purposes. LOGO's syntax is meant to encourage clear, logical thinking which should be present in anyone wishing to engage computing as a profession.

LOGO is best known for its "turtle graphics", a technique for creating a solid idea a child's mind can key on. It gives the teacher and child a common ground to communicate on. Giving movement commands to a turtle is something the child can envisage more easily than a graphics cursor. The idea of the poor turtle having a pen shoved through its shell has something psychologically doubtful about it. Moreover, with the current fad, "Teenage Mutant Ninja Turtles – Heroes In A Half-Shell" what next – "LOGO Turtles – Heroes Impaled On A Ball-Point"?

FORTH
Helios FORTH, HB Marketing, £49.95

Invented by Charles Moore and Elizabeth Rather in the early '70s as a control language for radio telescopes, no less. Its name derives from the inventors' belief it was a fourth-generation language. Unfortunately, the machine used to develop early compilers only allowed five-letter filenames – so the "u" was dropped, and the language was named.

Since then, FORTH has been adopted and evolved beyond the imagination of its inventors. At least two major support groups exist, The FORTH standards team and the FORTH Interest Group (FIG) each defining their own specification for how the language should behave. However, due to the design concept of FORTH, its is difficult to define a standard as such; only to define what words should exist. FORTH is an almost unique language in that it is completely defined in terms of itself!

A FORTH program is no less than an an extension of the language. Indeed, this has been further extended by advanced FORTH programmers who have used this concept to invent new, FORTH-like languages. At the time of writing HB Marketing, the only company known to be working on an Amiga FORTH, were unable to advise Format of a release date; expect it soonish, rather than later – watch this space…

■ Next month MARK SMIDDY examines more of the tools that programmers use to create

Thanks to the following for their kind support:

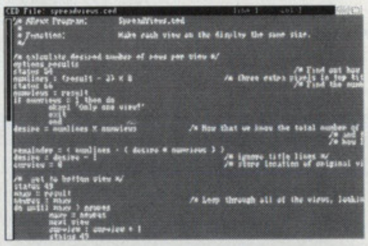
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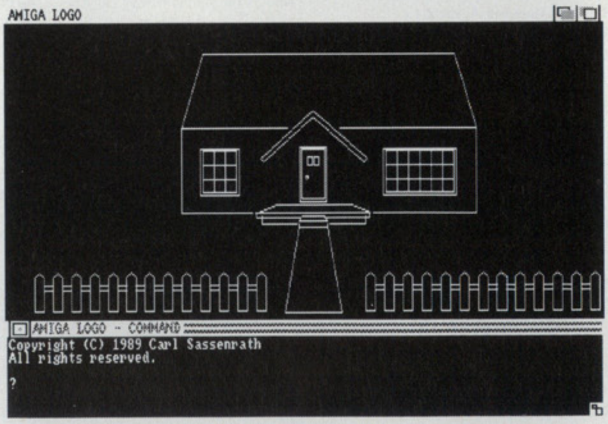
For lack of space, faulty disks, problems with suppliers etc. the following have not being included: AC BASIC, F-BASIC, Power BASIC, AiRT, Manx C, Lattice C++, Cape 68K. Freeoow! The following may also be available, but *Amiga Format* could not find any suppliers: LISP and ALGOL.

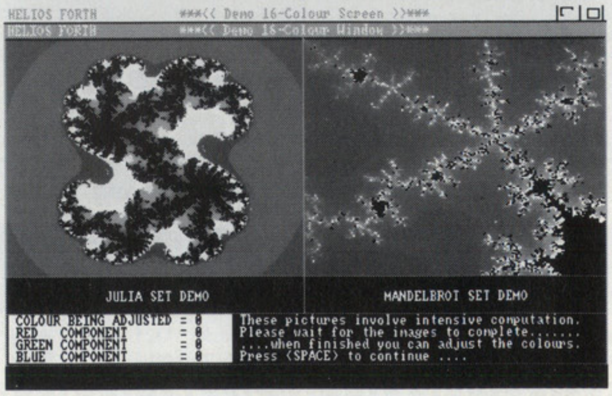
RIGHT: AREXX in action, using *Cygnus Ed* which supports it.

BELOW: This turtle has built himself a proper LOGO house...

BOTTOM: Helios FORTH shakes its funky stuff.







But Seriously

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"HiSoft BASIC is an excellent choice" - ST/Amiga Format March 89

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TRICKS WITH Coppers

Here's your chance to find out a bit about multi-colour background shading – PAUL OVERAA looks at some of the underlying ideas!

Intuition contains a wealth of tools for helping the programmer create good-looking and effective programs, so with a bit of care you can build programs which easily compete with the professional offerings! Gadgets, menus, requesters and their ilk look most effective if they are set against an appropriate background – so it's worth spending a bit of time experimenting in this area.

There are three basic approaches that can be used to provide a display background. Firstly you can 'draw' a picture using a program like *DPaint* and then read the resulting IFF file into your program to provide the necessary details. With this approach the single background picture can hold any information (program name, user instructions etc) which, in the final display, will not need to change.

Secondly, you can use graphics routines to build up a suitable background by writing directly into the display memory. And thirdly you can use the Amiga's co-processor, the 'Copper', to do the job.

This latter approach is used in hundreds of demos and in quite a few commercial programs as well. Many of them opt for a simple but effective horizontal background shading. To be honest I could give you half a dozen lines of C or assembler code and say this is how you can do it.

I could... but that approach is really only any use if you know what the hardware does and know how to generate the colour values anyway. I'll assume that since you're reading this article you don't know about such things and, because it's not going to be that obvious how the final C code works, I'll tackle the explanations right from first principles.

From the Top

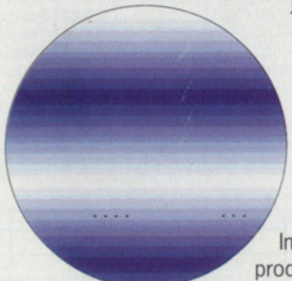
The main problem has little to do with the Copper or the Amiga at all – it's to do with working out how best to generate series of cycling numbers. Admitedly these numbers, at the end of the day, will be jammed into colour registers – but as far as the underlying principles of the thing go that's neither here nor there.

Essentially we need to step through the lines of the display and change the colour as we go, using a scheme like this...

```
for ( i = 0; i<SCREENLINES; i=i+1 )
    {
    Identify new colour 'j' to be used
    Set line 'i' to colour 'j'
    }
```

The variable j must be kept within the range of colour numbers suitable for the screen. The obvious choice is to combine the changing value of i with a modulus function so that we generate a value of j which will always stay within the chosen limits.

```
for ( i = 0; i<SCREENLINES; i=i+1 )
    {
    j = i % n
    Set line 'i' to colour 'j'
    }
```



If n is set to 5 then j will take values from 0 to 4 and the colours used down the screen will follow this pattern... '0 1 2 3 4 0 1 2 3 4 0 1 2 3 4' and so on.

In practise it's usually better to produce an oscillating sequence rather than a direct cycling sequence and so instead of generating the above pattern we'd opt for one based on a '0 1 2 3 4 3 2 1 0 1 2' type of arrangement. To do this we have to modify the generating function slightly. Here's one form which does the trick...

```
for (i=0; i<SCREENLINES; i=i+1)
    {
    if ((i/4) %2 == 0 ) { j=j+1; }
    else { j=j-1; }
    Set line 'i' to colour 'j'
    }
```

This code does produce the required result, but most programmers would use C's increment/decrement operators combined with an 'implied' i test, so they'd write the loop like this...

```
for (i=0; i<SCREENLINES; i++)
    {
    if ((i/4) % 2) {j—;} else {j++;}
    Set line 'i' to colour 'j'
    }
```

Even this form can be improved by using the ternary operator ? to select the operation performed on j...

```
for (i=0;i<SCREENLINES;i++)
    {
    ((i/4) % 2) ? j— : j++;
    Set line 'i' to colour 'j'
    }
```

That's dealt with the calculation of the colour values, so now all we need to worry about is how to set a screen line to a particular colour.

One way of doing it would be to use a standard line drawing function, so we could use the graphics function SetAPen() to set the pen colour for

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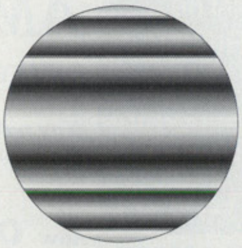
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drawing, then use Move() to position the pen at the start of a screen line, and finally use the Draw() function to perform the actual line filling operation. If we added this type of code to our existing loop we'd end up with a typical shading routine – this example uses a screen's rastport pointer to completely fill a screen display with an oscillating colour pattern...

```
for (i=0;i<SCREENLINES;i++)
    {
(i/4) % 2 ? j— : j++;
/* j selects the colour register */
SetAPen(rastport_p,j);
/* set APen to the selected colour */
Move(rastport_p, 0, i);
/* move to the start of the line */
Draw(rasport_p, SCREENWIDTH, i);
/* draw the line */
    }
```



You can of course modify the amplitude of the oscillation range – the expression (i/n) % 2 ? j— : j++; will oscillate between 0 and n inclusive. Secondly, you can add a fixed amount to the final j value produced – so that any given oscillating function can be made to select any chosen range of colour numbers.

Making the Most of the Amiga Hardware

On the Amiga we don't have to use routines like Move() and Draw() at all because we can use the Copper to jam colour values into the appropriate colour registers as the video beam moves down the screen.

To do this we have to build a list of copper instructions and then link this list into the screen's viewport. As you probably know the Copper has three instructions: WAIT, MOVE and SKIP. We'll be using WAIT, to wait for the video beam to reach a particular screen line, and MOVE to force a colour value into a colour register. Where do we get the colour value? Well, since I've spent half this article talking about loops that can generate a suitable series of numbers we might as well use this approach to calculate our colours !

So, how do we actually do it? Here's a step-by-step account of the things that have to be done (I've skipped details of variable declarations etc., because you'll find all that on the disk version...)

First we need space for a list of copper instructions. In the disk example I've used an AllocMem() call...

```
c=AllocMem(12L,MEMF_CHIPIMEMF_
PUBLICIMEMF_CLEAR);
```

Next, we make use of a system macro called CINIT to initialize our copper list memory...

```
CINIT(c,800L);
```

Now all that's needed are the Copper instructions themselves: I'm using a loop which works out the necessary instructions for each screenline, calculating the colour with a function similar to the oscillating function we discussed earlier.

The CWAIT system macro creates copper instructions which say 'wait for the video beam position to reach co-ordinates (j,0)'. The CMOVE macro produces the instructions which jam the colour I've calculated into the background colour register (register 0).

The result of the following loop, therefore, is a list of Copper instructions which continually change the value of colour register 0 in the split seconds as the electron beam moves down the screen...

SPECIAL

```
for (j=0;j<SCREENHEIGHT;j++)
    {
    (j/15) % 2 ? Blue— : Blue++;
    CWAIT(c,j,0L);
    CMOVE(c,custom.color[0],Blue);
    }
```

Finally we terminate the Copper list with an impossible wait instruction (that's what the CEND system macro does), link our newly created Copper list into the viewport, and remake the display like this...

```
CEND(c);

global_viewport_p->UCopIns=c;

MakeScreen(global_screen_p);
RethinkDisplay();
```

So that's it: Grab some memory (or create a static list if you like), initialize it, use a loop to generate some 'wait and jam a colour into a register' instructions, link the list into the viewport, and then remake the display.

Once you know what you're doing you can squash the whole 'Copper list generation' thing into three or four lines of C code... so don't let anyone kid you that it's difficult!

You'll find a short C demo, called *Coppertest*, on the Coverdisk: The source code is called 'coppertest.c'. I've kept the code to the bare minimum... it just opens the required system resources, installs a copper list which modifies the background screen colour, and then hands back the resources it used and quits. ■

JUST SOME OF THAT CODE!!!

```
/* *********** GENERAL CONSTANT DEFINITION STATEMENTS *********** */

#define INTUITION_VERSION 0 /* Zeros mean ANY library versions */
#define GRAPHICS_VERSION  0
#define SCREENPLANES  4     /* Here we prepare to set up a high */
#define SCREENWIDTH   640   /* resolution Non-Interlaced screen */
#define SCREENHEIGHT  240   /* with 240 lines and 4 bitplanes */

/* ************************ INCLUDE FILES ************************ */

#include <exec/types.h>
#include <exec/memory.h>
#include <intuition/intuition.h>
#include <graphics/gfxmacros.h>
#include <graphics/copper.h>
#include <hardware/custom.h>

/* ************* STRUCTURES FOR SCREEN AND WINDOW **************** */

struct NewScreen NewScreen = {
   0,0,           /* top left */
   SCREENWIDTH,SCREENHEIGHT, /* width and height */
   SCREENPLANES, /* depth, i.e. the number of bitplanes */
   1,0,          /* detail and block pens */
   HIRES,          /* ViewModes */
   CUSTOMSCREEN,
   NULL,           /* Accept Default Font */
   NULL,           /* No Title */
   NULL,           /* No Gadgets */
   NULL,       /* Pointer to the bitmap structure */
};

struct NewWindow NewWindow = {
   0,0,    /* window XY origin relative to TopLeft of screen */
   SCREENWIDTH,SCREENHEIGHT,    /* window width and height */
   -1,-1,              /* detail and block pens same as screen */
   NULL,               /* IDCMP flags */
   BORDERLESS,         /* other window flags */
   NULL,   /* first gadget in gadget list */
   NULL,   /* custom CHECKMARK imagery */
   NULL,   /* window title */
   NULL,   /* custom screen  */
   NULL,   /* custom bitmap */
   SCREENWIDTH,SCREENHEIGHT,    /* minimum width and height */
   SCREENWIDTH,SCREENHEIGHT,    /* maximum width and height */
   CUSTOMSCREEN                 /* destination screen type */
};

/* allocate and initialize some memory for a user copper list. I'll
assume, for this example, that the allocation won't fail... */

c=AllocMem(12L,MEMF_CHIP|MEMF_PUBLIC|MEMF_CLEAR); CINIT(c,800L);

/* here's the loop which sets up the user copper list... */

for (j=0;j<SCREENHEIGHT;j++)

   {

    (j/15) % 2 ? Blue- : Blue++;

    CWAIT(c,j,0L);

    CMOVE(c,custom.color[0],Blue);

   }

CEND(c); global_viewport_p->UCopIns=c;

/* we now redo the display so the copper list comes into effect… */

MakeScreen(global_screen_p); RethinkDisplay();

/* finally we quit after a delay of about 5 seconds */

Delay(250);

end_block();

exit(TRUE); /* Logical end of the program */
```

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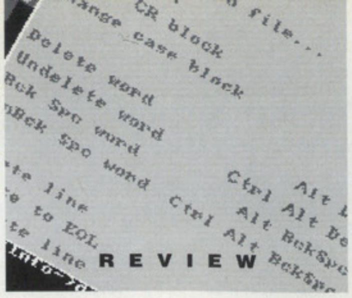
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CLOSE TO THE EDIT

Can Cygnus Soft's revised text editor live up to the reputation of its illustrious predecessor? JASON HOLBORN finds out.

Programming is a funny old game. Sometimes you can produce reams of code and solve all those programming problems in no time at all, other times you can sit for hours without producing a single bit of useful code – a case of programmer's block, perhaps?

One of the factors that dictates how well you work is the quality of your working environment – if you don't feel comfortable when you're working, you just aren't going to be working at your full potential.

Disregarding the quality of your surroundings (is your chair comfy enough?), the programming tools you use can also have an effect on your working capacity. It's all very well going out and buying the most powerful and easy to use compilers available, but many programmers seem to ignore the most important programming tool of them all – the text editor. After all, the vast majority of your programming time will be spent writing code, so it's vital that your text editor is as unobtrusive to the creative flow as is possible.

Pedigree Choice

Since its release nearly two years ago, Cygnus Soft's *Cygnus Ed* has caused something of a storm on the Amiga. Big names such as R J Mical and Jay Miner (two members of the original Amiga development team) have endorsed the product wholeheartedly. Indeed, many said it couldn't be bettered, but CygnusSoft have proved us all wrong with the release of *Cygnus Ed 2*.

From first impressions, *Cygnus Ed 2* looks virtually identical to its predecessor. However, further examination reveals both new and revamped features. Although the user interface hasn't changed noticeably, Cygnus have (surprisingly) changed many of the requesters. In particular, the *Cygnus Ed 2* file requester has been revamped beyond recognition – the original was something pretty special, but this new requester will just blow you away!

The strength of any text editor lies in the power and flexibility of its features. The good news is that *Cygnus Ed* certainly isn't let down in this department. As well as all the usual features you'd expect from a top-flight text editor – such as the ability to copy, cut and paste blocks here, there and everywhere – *Cygnus Ed 2* offers many new features.

The original *Cygnus Ed* was renowned for its operational speed, but Version 2 raises the standard still further with an all-new turbo replace mode that operates up to 100 times faster than the original. Never again will you be left waiting for your text editor during an intensive search and replace operation.

Cygnus Ed 2 will now maintain a command and change history for each file being edited. By simply allocating enough memory to this task, it is actually possible to undo and then redo every operation carried out during an entire editing session!

Bored with the standard Topaz font? With *Cygnus Ed 2*, you can change the screen font to any non-proportional disk or ROM-based font.

Macros are handy little fellows when you want to carry out the same series of operations several times without having to manually repeat every opeartion yourself. *Cygnus Ed 2* allows macros to be assigned to any key irrespective of the key's default value – you can even redefine the cursor and RETURN keys! This allows the entire keyboard to be remapped to the user's preference.



ABOVE: The *Cygnus Ed* user interface is a joy to behold. Both logically designed and fast in operation, it is a pleasure to use.

Edit Decision

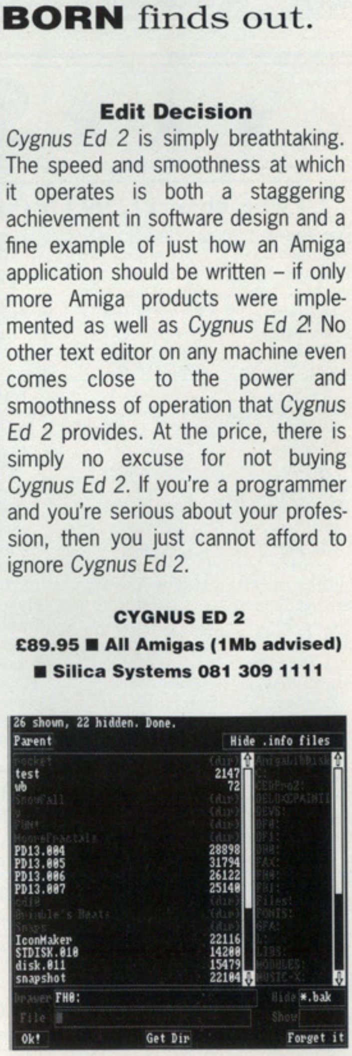
Cygnus Ed 2 is simply breathtaking. The speed and smoothness at which it operates is both a staggering achievement in software design and a fine example of just how an Amiga application should be written – if only more Amiga products were implemented as well as *Cygnus Ed 2*! No other text editor on any machine even comes close to the power and smoothness of operation that *Cygnus Ed 2* provides. At the price, there is simply no excuse for not buying *Cygnus Ed 2*. If you're a programmer and you're serious about your profession, then you just cannot afford to ignore *Cygnus Ed 2*.

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When you buy *Cygnus Ed 2* not only do you get a damned good, state-of-the-art text editor, but this latest release also includes a library of requester routines for programmers. This disk-based library includes many routines for creating and managing requesters and gadgets without having to suffer the hassle of using the Intuition library routines. Best news of all is that the library includes not one, not two, but three ready-made requesters to handle file I/O, colour palette editing and font selection.

Cygnus have generously decided to make this requester library freely distributable and are actively encouraging developers to use the library in an attempt to encourage a more standard user interface for the Amiga. Full documentation and 'Include' files for for various languages are included on the *Cygnus Ed 2* distribution disk, therefore allowing everyone to take advantage of this marvellous library.



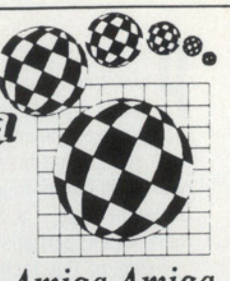
RIGHT: Programmers will love the included requester library. It provides a whole host of gadget and requester routines and even three ready-made requesters covering file I/O, colour palette editing and font selection. Here's the file requester in action.

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SCREEN SCENE



Art packages are appearing thick and fast these days, but some take a new approach. Take a fractal attitude to the natural world with MARK HILL.

Why go out into the countryside, with paints in your hand and canvas rolled up under one arm, just to paint a landscape when it's sure to take up the best part of a day? You have all the equipment in your own home, and the job can be done in a tenth of the time! With the good old box of microchips, plus some modern mathematics, you can create classic, picturesque masterpieces and store the scenes on disk.

Scene Generator enables you to create your very own landscape scenes with stunning results. The program creates random 'fractal' landscapes, and can create nearly infinite varieties too, enabling you to experiment to create the scene of your choice.

The landscapes range from simple foothills to tall mountain ranges, and as well as the main body of land, there are a limited number of other features that can be included, such as water, clouds, snow and beaches.

The whole idea is that *Scene Generator* produces natural scenes, so there is no option to include extra materials such as buildings, roads or any other commercialised activity.

Mathematics

To determine the shape of the landscape you have to enter number values from the options in the menu, and these options must be variable. The basic shape of the landscape depends on the seed and height values of the land. Both values are integer numbers that are entered under the 'land' menu option. The seed may range from 0 to 65535 or can be randomised.

The land height is an integer in the range of 0 to 9999, so if you wanted to create a landscape of foothills, then you would enter a value of around 500, but if you decided on a new Mount Everest situated in a spiky mountain range then you'd enter a value of around 9000

Because the scenes created have such wide variety and effect, many would assume that in order to create such scenes, they'd have to undergo a lifetime of instruction reading. But no – in this case, the instructions are short and very easy to understand.

Starting off is very simple and it does not take long to revise the options available and get used to creating what you want.

The more accustomed you become with what the integer numbers produce, the closer to perfecting an idea you get. This applies to the palette combination of greens, greys and browns as well, which is an option you get used to in creating the desired effect for a scene.

The few options available are all that's needed to create the best scenes and it's not always necessary to include all the options, as some scenes only need a small combination of features to get the best effect.





TOP: The fractal scenes are saved in IFF format, so can be loaded into an art package and used as a background. Here a *DPaint* brush from *Real Things* is given a natural background.

ABOVE: *Scene Generator* allows great control over the palette after a scene's created, so effects like this sunset can be achieved.

Menus

Probably the most important menu and the one that's used first for the foundations of a new scene is the land menu. Here you choose the colour of the land by combining brown, grey, green tones and also white for snow, if you wish.

The other features available are simple items that provide the rest of the ingredients for a particular scene. The 'lighting menu' determines where the light appears on a scene and you select one of nine possibilities. For example the light source can be overhead or at front left, all dependent on which option suits a particular scene.

On the water menu you can select whether you wish to include water, and if so, at which level. Included under the water menu heading is the option of adding texture and beaches to add that extra bit of detail to a developing creation.

The final options menu is where you can modify the palette from the standard set of colours used by *Scene Generator*. This option gives you great flexibility and enables you to achieve many different effects. The 32 colours available are divided into five groups. One set of four are for the sky, another four determine the water surface, and three groups of eight for the land. And what landscape would be complete without a few clouds, which can also be added.

A vital element that makes this program so appealing is the simplicity of the instructions in proportion to the effective detailed results – such little time is needed to create a really good scene. If you don't fancy ploughing through piles of instructions on most art programs but fancy creating a worthwhile scene that's detailed and interesting then check this out.

The graphics are superb and the scenes are very lifelike and incredibly detailed. It's an artistic package that shows originality and, by virtue of the fractal imaging, really puts the natural world into perspective.

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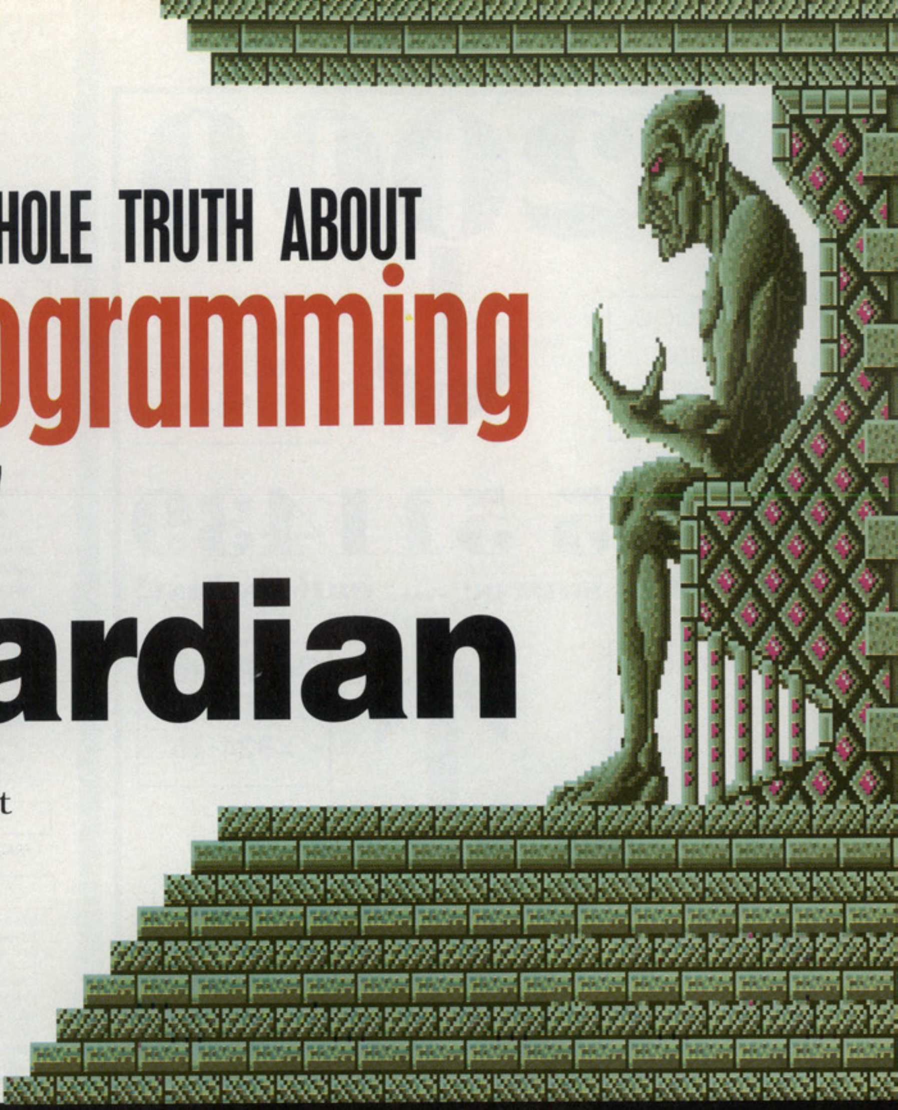
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THE WHOLE TRUTH ABOUT games programming PART 7

The Guardian

Here it is – the last instalment of *Menace, the game*! This month's source contains the addition of the guardian graphics and code.

The guardian is simply made up of a few normal aliens, as described last month. It is not normally feasible to have a huge animated end guardian as it would require vast amounts of memory. The usual sacrifice is to have the main bulk of the guardian as a single bitmap, with bobs or sprites overlayed on top for the animating sections.

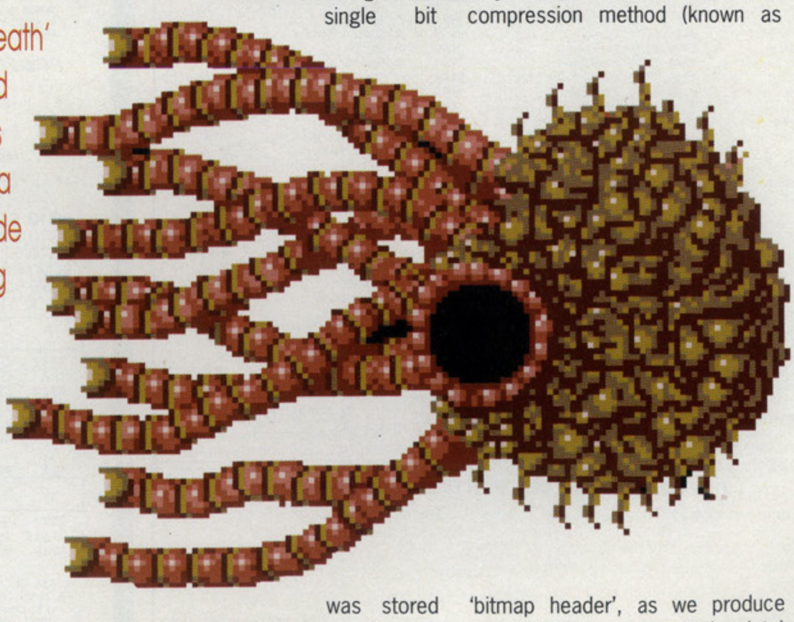
The classic *R-Type* did this in the end of Level One guardian where only the tail and a small part of the stomach were actually animated, but it was still pretty impressive. *Menace* is not that impressive, but it does demonstrate the usual technique.

> "Then the 'death' path is initiated which ensures nobody takes a leisurely attitude when dealing with the guardian!"

Big Bad Boys

The pictures above and right show the guardians from Levels One and Five respectively. These are the *DPaint* screens. All guardians are 256 x 192 pixels in size. They are drawn on the right-hand edge of the screen in strips of 16 pixels, just as the map was. Rather than store them as a simple bitmap image (3 planes x 192 high x 32 bytes wide = 18432 bytes) a simple compression was used in order to save memory.

Each strip of 16 pixels was compressed by noting where all the zero words ocurred and only storing the actual non-zero data. This was done by looking at the words from each plane of the image in succession from the top of a strip down to the bottom. If all three planes held no data (this happens a lot, as you can see from the figures) a single bit



was stored to flag this, and no data was stored in the compressed file.

If any of the planes did contain data then this was flagged by a single bit, and the three words of data were copied to the compressed file. At the end of the strip (192 lines high) we will have only copied the non-zero data to the compressed file, and will have 192 bits of data (24 bytes) to signify which line of the bitmap this particular data came from. This is a very simple but relatively quick compression method (known as a 'bitmap header', as we produce a map of bits to represent the data). It usually halves the size of the guardian data for each level.

Eye Holes

You can see in the picture above the 'hole' for the eye in the Level One guardian. The eye is simply a normal

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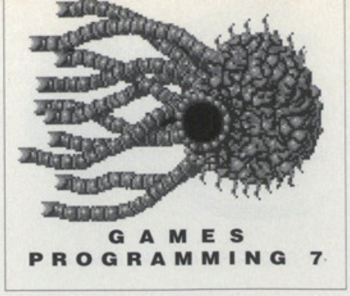
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alien following a standard path. The game knows when a level has been completed when this alien is destroyed. All aliens have a unique number so this is very easy to check.

The guardian bitmap image is drawn in the front playfield so all the aliens appear behind the image as with the foreground scenery. This allows aliens to 'appear' anywhere on the screen, but as long as they are behind the guardian it will not be noticeable. This is how the small 'tadpoles' on the Level One guardian are repeated. Their path data simply makes them appear under one of the guardian tentacles, then swim left till they are offscreen, then go back to the tentacle; and so on. Nice and simple, but it works.

The guardian path is repeated for about 30 seconds, which should be enough time to kill the guardian. If it has not been killed in this time then the 'death' path is initiated in which case all the aliens are substituted for homing mines that cannot be destroyed. This ensures nobody takes a leisurely attitude when dealing with the guardian!

Death by Explosion

When you finally kill the guardian another alien path is started. This one, though, is not deadly, but is simply a collection of explosions all around the guardian body to give the effect of it exploding. This is no different from any other path data and shows that a flexible routine can be used in many places in a game, saving the task of writing more code for some effects.

And that is basically all the game ingredients covered. I have not presented the code for the 'extras' that go into a game as many are quite simple and others have been are the result of many months' work and cannot be published, but I'll run over some of the main ones.

Disk Routines

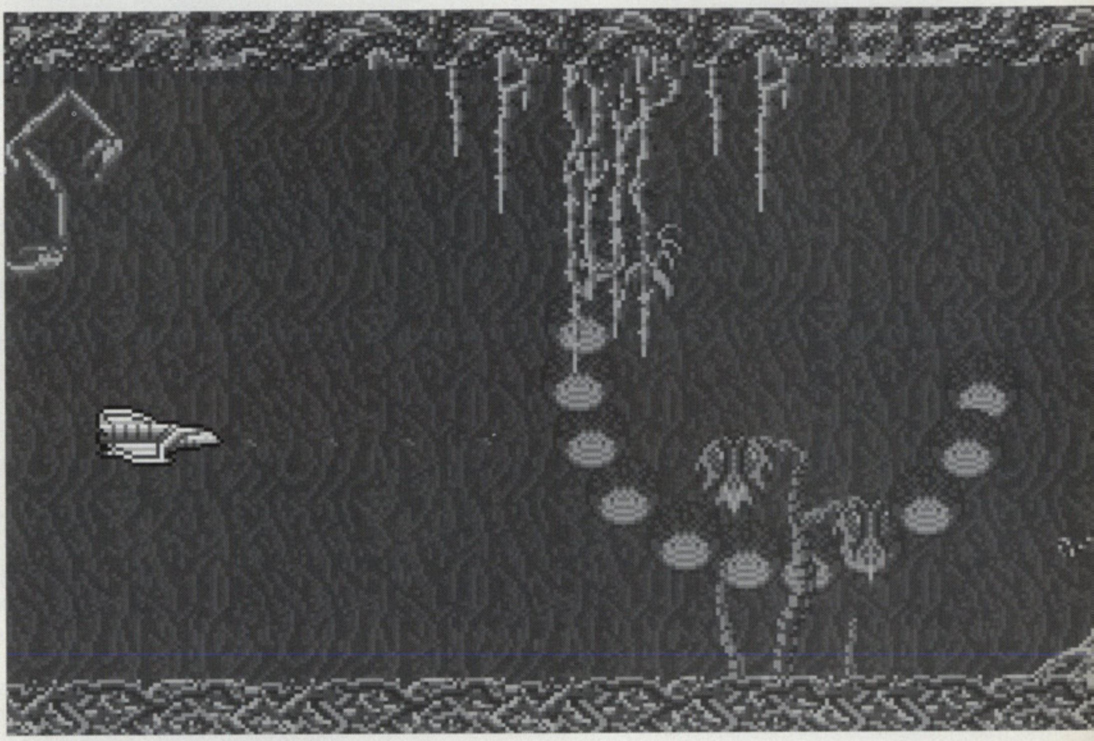
Hmmm, the main reason for many sleepless nights for Amiga programmers! There are three basic levels to using the disk drives on the Amiga for reading/writing your data. AmigaDOS is by far the simplest, and is frequently used for development tools.

To use the DOS routines for a game requires that the operating system is fully intact. This causes severe performance and memory loss. The performance loss can be solved by using the framework given in the first article to disable then re-enable the system when you wish to use a DOS routine.

The memory loss due to the operating system, though, cannot be solved. You will typically lose 100 KBytes if you want to use DOS. This is a lot of memory to a programmer so the DOS route is not usually taken.

The trackdisk device is a set of Amiga system routines that allow you to access the disk as individual sectors. It is quite fast and can run with the minimum of the operating system being intact. Memory loss is still a problem, though, at around 50 KBytes, and once again you have to enable the system to use the trackdisk routines. Providng you can work with this it is a useable alternative to the real hardware nitty gritty.

Getting right down to hardware register level is the lowest we can go. Come down to this level and you have complete control of the system and ALL the memory. Be warned though, MFM encoding, Precomp, SYNC words etc. are all tricky issues. In their individual ways they are quite straightforward, but the difficulty is in testing them all together.



You cannot use a monitor such as Monam2 to debug, as this would require the system to be running, which would interfere with the code you are trying to test. The ideal situation is remote debugging (connecting two Amigas via the parallel port, as Devpac Professional allows) but this is quite expensive.

The method I used when first writing the disk routines was simple trial and error and many late nights. Luckily they only have to be written once. Once they are working simple refinements are all that is required. The Abacus book 'Amiga Disk Drives Inside and Out' has recently appeared on the market, which should prove to be a big help.

This is the only method to use if you want the full memory and complete control so it is well worth spending time writing some *reliable* disk routines for your game.

> "a flexible routine can be used in many places in a game, saving the task of writing more code for some effects"

Music And Sound Effects

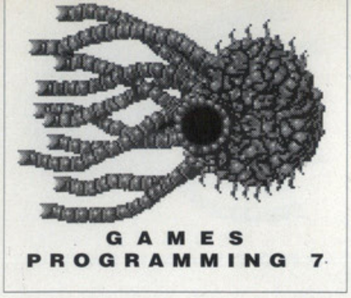
The music and sound effects for *Menace* were written by Dave Whittaker. His name is fairly well known for Amiga game music (other titles include *Shadow Of The Beast* and *Xenon II*). The ideal situation is to get the music written by someone like Dave, who does this for a living.

At the end of the day what you get for your money is the music and sound effects, for basically any machine you require, along with the code to play them, all supplied in a single module of data.

You simply call one of his routines from within your code, and off goes the music or sound effects etc. This makes life very simple for the game programmer, the music and effects usually only taking one day to be added to the game.

The Amiga, though, is well catered for in the music department. You may decide to write the music yourself with one of the standard packages such as *SoundTracker* or *SoundFX*. These popular programs have source code available to play the music that you create. You can therefore save some money by having a friend with a little musical ability, compose a track on one of these packages, then spend a little time on getting the player working in your own code.

These packages do not, however, cater for the playing of sound effects over the top of the music. A simple



sample player is all that is really required to generate some effects, so the simple solution is to allow the game to have music or sound effects going, but maybe not both at once.

The main minus point about using a standard Amiga package is simply one of portability of the music. If, for instance, an ST version of the game is required then ideally the music writer and player you use on the Amiga should also be available on the ST. I believe that there is now a *SoundTracker* file player for the ST, so if you use that program this would solve your portability problem.



Memory wise, you should leave aside about 100 Kbytes for a decent soundtrack. It is possible to have a soundtrack that does not use samples, but generated instruments as used on the C64. Soundtracks that use this technique will quite easily fit within 10 Kbytes, but you obviously lose a little of the effect of good Amiga samples.

One point to bear in mind on the music front is one of playback speed. Most of the player routines are patched into the vertical blank routine, so on PAL machines the music is updated 50 times per second. This seems fine, but remember that the NTSC standard, as used in the States, updates 60 times per second. This means that the music will be 20% faster over there than over here. This can turn a good soundtrack into one that sounds a bit naff because it is too fast.

Your game should either use a timer to generate a 1/50th of a second interrupt, which will be the same on any machine, or detect which type of machine you are on (PAL/NTSC) and slow down the music accordingly. This is simply done by not calling the music routine every 6th vertical blank on an NTSC machine. Remember also that you have 20% LESS processor time per frame on an NTSC machine. This can cause havoc if you write a game, designed to run in a single frame, that has not taken into account this loss of processor time.

All new Amigas with the fatter AGNUS chips now have the capability to be switched into 60 Hz mode. Monitors (and some TVs) can handle this, and ideally you should try to get access to one to test out your code on in 60 Hz mode. All Amiga games should also now start to accomodate this 60 Hz switch capability on a key press in a game.

Running your game in 60 Hz mode will result in the game playing 20% faster, and also filling the entire PAL display (even though the graphics may look a little stretched). ST owners have always had this capabilty, and it is a nice feature to include into a game.

Intro Sequence

A nice rolling intro for the game can do wonders for its appeal. They add nothing to the game, but add a little variety to the package. A good intro to a game should be a piece of code that is technically and visually excellent, the sort of thing that is not really possible to implement in a game itself, but shows of some of the capabilities of the Amiga.

This sort of effect should also be added to the game should anyone eventually complete the game. It is a real letdown when you spend months playing a game, finally manage to finish it, and up pops a bit of text saying 'Well Done'! Programmers who do this should be shot (there is an animated sequence at the end of *Menace* and one after *Blood Money*, by the way, so I'm safe from the assassins for now!)

"Games like *Populous* and *Stunt Car Racer* really come into their own in head-to-head mode – they have cost us many a day's work!"

AND FINALLY...

TEXT ROUTINE

Try to design an impressive character set, maybe incorporating some copper tricks to jazz the text screens up a bit. If you are working on a monitor then keep in mind the TV users and don't have a small character set, they will probably not be able read it.

HIGH SCORE TABLE

Most arcade style games need a high score table. They are usually pretty boring to write (this is usually the first routine to get delegated to new programmers!) A 'save to disk' option is usually a must.

DEMO MODE

Any game that has a self-play demo mode is much more likely to be loaded and displayed in a shop. It will also help when the game is shown at the multitude of computer shows throughout the year.

SERIAL/PARALLEL LINK

Many games are now incorporating these types of link for head-to-head action. Games like *Populous* and *Stunt Car Racer* really come into their own in this mode – they have cost us many a day's work! It really depends on if the game is suited to a two-player head-to-head, of course, shoot-em-ups generally are not, but there is always a first time for everything...

PROTECTION

Most programmers tend to implement various protection schemes of their own, although the disk duplicators can often offer their own techniques also. In my belief it is not possible to protect a disk 100% from being copied. The main aim is to DELAY as much as possible the inevitable 'cracked' copy appearing.

Most games tend to sell their strongest in the first month. Over a period of two years, 80% of the sales may well have happened in this first month. If you can therefore stall the pirates for as long as possible, people have a much better chance of seeing the game in their local shop, than suddenly appearing in the post from friends.

Adding protection can be a long and tiresome process. It is sad that it has to be done, but that is a topic we are all familiar with...

On that sombre note I'll wrap up this series. I hope many of you have a go at some programming. It is possible to write games in your spare time as a hobby. You never know, it could lead to a full-time job. And as the old saying goes, "A man whose hobby is his job, is a very happy man" (circa. 1990 Dave Jones, DMA Design).

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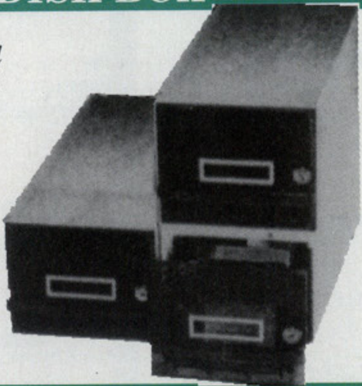
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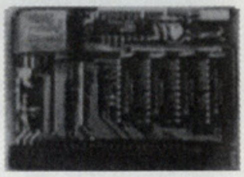


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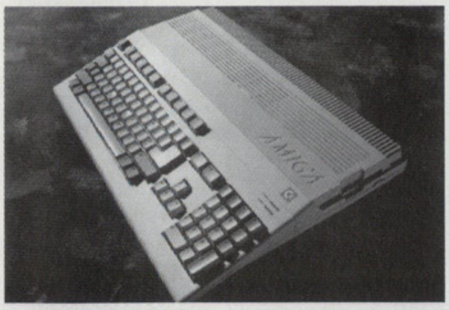
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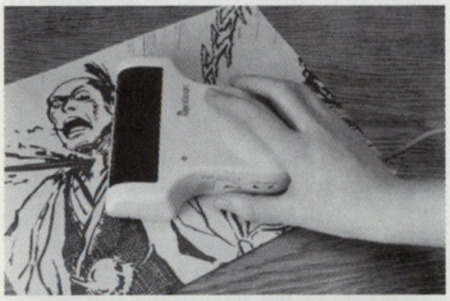
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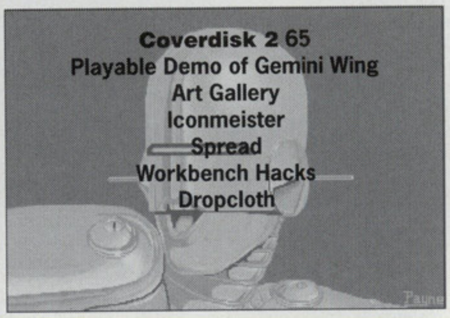


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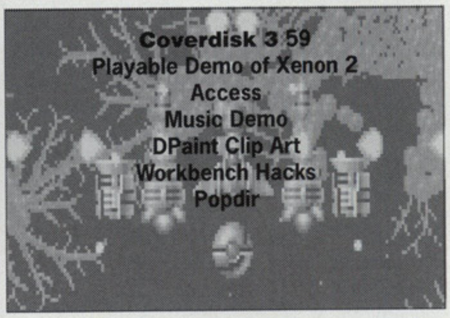
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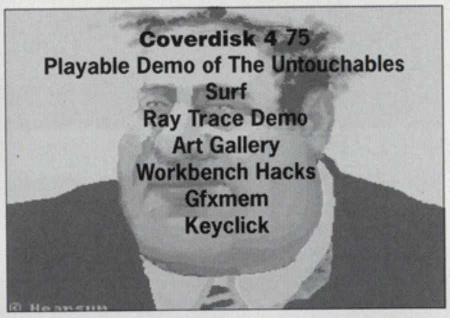
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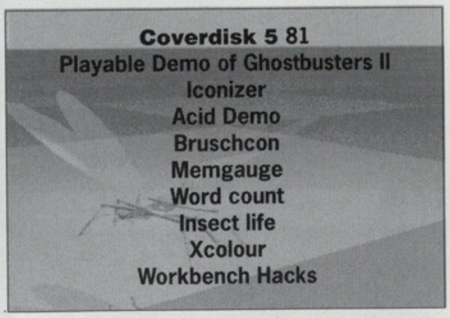
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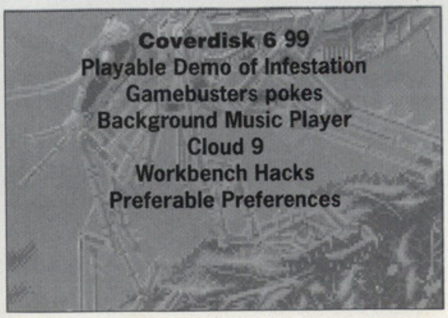
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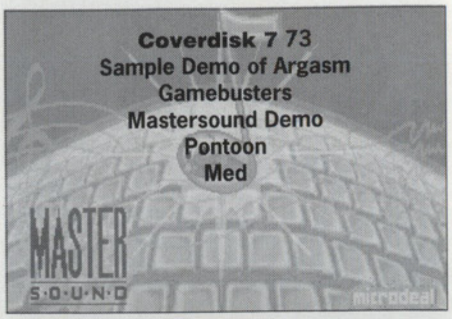
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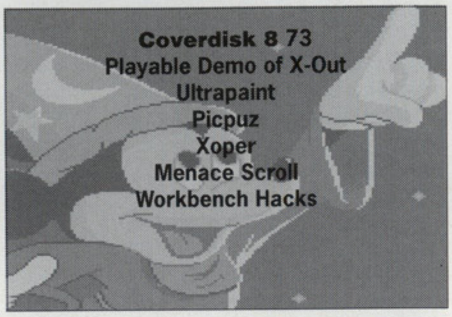
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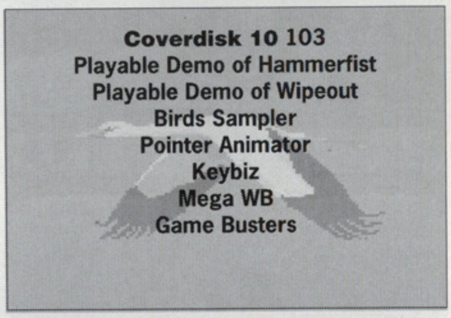
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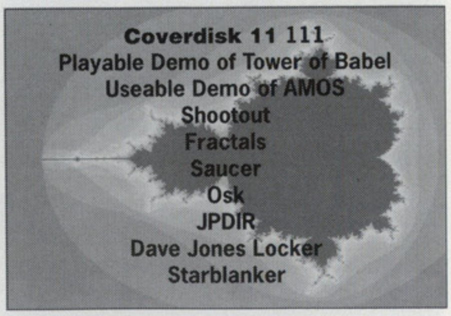
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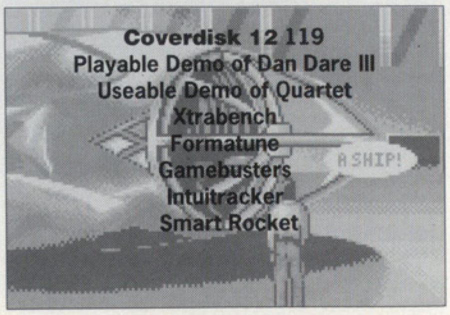
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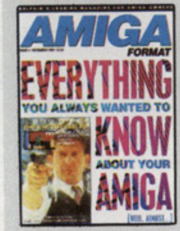
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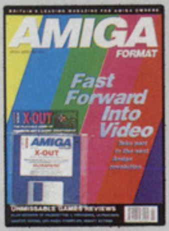
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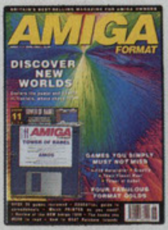
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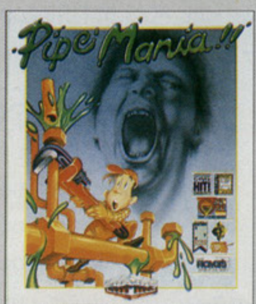


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Workbench

The usual inordinately useful selection of queries answered and tips provided is brought to you once more, this time courtesy of **KEITH POMFRET**.

THE TIPSTER

I have three little tips that you might be interested in. They all concern *DPaint II.*

Tip One

To customise one of the brushes at the top of the toolboxes, all that you have to do is bring the mouse to the brushes box and click the right mouse button. It will ask you to customise it by clicking on the left mouse button and dragging to the desired size.

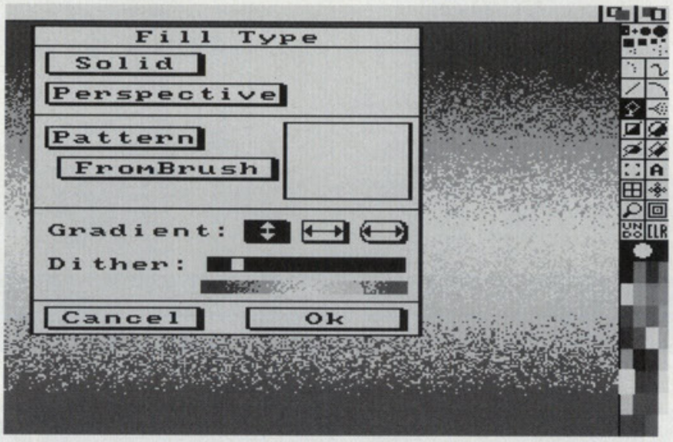
Tip Two

This helps with the magnifying glass – when you are looking closely at at a part of the picture and you want to move it on a notch up or down, left or right. All you do is go through the usual procedure to get your magnified picture. Then simply put the pointer over the part of the screen that's blown up and use the arrow keys to move.

Tip Three

This one's just for fun. When you first load *DPaint II,* click on the right mouse button over the fill-in tool, and a box will appear. Click in the box with the up and down arrows in the lower part of the screen. Then click on the OK box. Choose a colour (preferably yellow). Fill the screen, and it should come up in all colours.

Josh Yates



An interesting experiment in *Deluxe Paint II.* See the Tipster!

INK STINK

Here's a money-saving tip for those of your readers who have printers with rather expensive ribbons. I have a Commodore 1500c (an Olivetti). Unfortunately, the colour ribbons cost £25 each and I have not succeeded in finding a plain black, which one would expect to be a little cheaper.

Since the majority of my printing is done in script (plain black) something had to be done. I found that it is possible to prise off the lid with a sharp knife. Inside is a stack of four foam plastic rollers, impregnated with coloured ink. The black one is the top one.

Lift this roller out and it is possible to replenish it using Ink Pad Ink, available from any reasonable office supplier. Replace everything as it was, and your ribbon is good for weeks. I am using the original ribbon that came with the printer over a year ago, although I am using the blue band now as the black was showing signs of wear. Contrary to rumour, I have experienced no clogging of the pins.

The two inks which I have used are Stephens Endorsing Ink and Swallow Stamp Ink.

Mike Pitchers

Clogged pins you may not have but you are certainly heading the right way for a dead printer. The ink on a printer ribbon contains silicon or some other purpose-designed matrix head lubricant. By using a simple endorsing ink instead of the proper stuff, you are most certainly damaging your expensive printer. Would you pour inverted sugar syrup into the engine of your car because it looked like multigrade oil? I certainly wouldn't.

Until recently, the only option other than to buy a new ribbon was to send it to a re-inking service. These charged you a couple of quid to make your pale ribbon strident again.

To fill the needs of the do-it-yourself merchants such as yourself, the silicon ink is now available in an aerosol can. It's called Caspell Ribbon Refresh and costs a mere £8 for a can that will do dozens of ribbons. The can comes with an applicator (like the WD40 can) and after putting a sheet of newspaper down, the job of re-inking a ribbon only takes a few seconds. Ribbon Refresh is available from WACCI on 081-898 1090.

FRENCH RHYTHMS

The other day I was writing a program to discover and print people's biorhythms. One part of it needed code to produce a graphic dump of a graph. I thought first of utilising part of the *Screenprint* routine by Carolyn Scheppner on the Extras disk. However, I needed to know whether the Preferences printer was in colour, black-and-white or greyscale to see how the screen colours should be set. This is the code I came up with.

```
Sub getprintertype STATIC
SHARED printer.type$
OPEN "devs:system-configuration" FOR INPUT AS #1
FORI=1 TO 174
p$=INPUT$(1,#1)
NEXT I
CLOSE#1
IF ASC(p$)=1 THEN printer.type$="GREY SCALE":EXIT SUB
IF ASC(p$)=2 THEN printer.type$="COLOUR":EXIT SUB
IF ASC(p$)=3 THEN printer.type$="BLACK AND WHITE":EXIT SUB
PRINT "No can do! Couldn't decipher the system configuration
END SUB
```

Simple, isn't it? It works, though. All you have to do is insert a "Getprintertype" somewhere in the program, and hey presto! the string printertype$" contains the type of printer available. If anyone wants a copy of the biorhythm program, lob us a disk and a stamp and I'll send it to them.

David French
GATEACRE, Devon Road
Salcombe, Devon, TQ8 8HQ

MEMORIES...

I own an Amiga 500 and recently upgraded it to 1 meg with the Commodore A501 RAM/Clock expansion. I am now considering buying the A590 hard drive, with which there is an unpopulated RAM expansion upgradable to 2 megs.

I would like to know if, with this 2 meg expansion, I will be able to use the A501 RAM expansion and have a total of three megs or whether the A501 will be useless and I will only be able to use the 2 megs with the A590.

As well as this, I want to know if the A590 will run as comes or if I need any other hardware.

Stephen Bishop

Breathe again, you can carry on shovelling chips into an Amiga A500 right up to its 8 Mb ceiling providing your peripherals and hardware have adequate sockets. With some of the new higher density boards that go in the socket under the A500, this could mean a 512K on-board, 1.5 Mb underneath and 2Mb in your A590, a total of 4 Mb on board.

SINGLE DRIVE TIPS

I would like to pass on a couple of my tips to other user of an Amiga who only have a DF0: (single

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floppy disk drive) to rely on.

1. I have been approached by a couple of people who have a single drive and cannot get a directory from a disk other than the Workbench. The method that I describe appears to work only with Workbench 1.3 (on the Amigas that I have tried) and does allow a directory to be displayed.

a Boot up using Workbench 1.3 and double-click the SHELL.
b Move the shell to the top using the drag bar.
c Expand the shell to screen size by dragging the sizing gadget.
d Remove the Workbench 1.3 disk and replace with required disk.
e Wait for the disk to stop accessing and type: cd df0:
f The prompt should now change to the name of the new disk that you inserted.
g Now type: dir
h the Amiga will prompt you to insert Workbench 1.3. DO THIS – this enables the Amiga to read the DIR command from the C directory
i A prompt will appear asking you to reinsert your new disk in order to read the directory and... as if by magic... your directory actually appears!

It is possible to access any directory on the new disk by typing 'dir (directory name)' in step (g)

2. When using only DF0: to copy disk files from one disk to another, a hell of a lot of disk changes are involved unless all the required files are copied from the original disk to RAM and then from RAM to the new disk, for example...

We need to copy a file called Tester onto a disk called Myfiles. First access the CLI or SHELL using Workbench. Make yourself a temporary directory in RAM (it can be called anything, I chose 'temp') by typing:

makedir ram:temp

Copy the file required into the new directory:

copy Tester to ram:temp

Put the new disk in DF0 and copy the file from RAM onto the new disk using;

copy ram:temp/Tester to to MyFiles:Tester

The Amiga will ask for the Workbench in order to read the copy command. The prompt to re-insert the volume Myfiles will follow closely and the file will be copied in one go. When the file has been copied type:

delete ram:temp/tester
delete ram:temp

This will free the RAM ready for more work. When using the Workbench, there is a limited amount of RAM available for such tasks. To copy more than one file or a complete directory, use a DOS utility like Clickdos, Diskmaster, CLI-Wizard, or CLI-Mate. These are available through public domain libraries.

Graham Morecroft

Your hints on file copying are gratefully received but I think that the ease with which PD DOS utilities work should make any manual copying a thing of the past for all but the dedicated wireheads and command-liners.

Now if someone would come up with a Multi-Dos utility that would do all of this while tackling Amiga, ST, Mac and PC disks, and at the same time being memory resident and only taking up a couple of kilobytes...

DISK DOCTOR

I thought that you might like to pass on some information that I have gleaned about the BGS virus.

As most people should know by now, not all viruses live in the bootblock. Some now hit files. One virus will give you a software error because it affects the start-up of the disk.

The BGS virus works like this. Having put an infected disk in the computer, the virus writes itself to RAM as normal. Where it differs from other viruses is that it reads the first command of the startup sequence of any disks inserted thereafter. This can be anything from ADDBUFFERS to a game.

The virus renames that command to a load of spaces and moves it to the DEVS directory. If there is no DEVS, it usually puts it at the end of the disk.

It then renames itself to that command name, but the byte count will always be 2608.

To take an example. The Workbench1.3 disk has ADDBUFFERS DF0: 10 as its first command in the start-up sequence. You can find ADDBUFFERS in the C directory.

On an infected disk, you will find the following. You get software error. Switch off and load UTILMASTER, CLI-MATE or similar. Check the S/Startup sequence and you will see that addbuffers is the first command. Go to the DEVS directory and you should see a blank line with a byte count at the end. (On my disk it is 876.) That is the ADDBUFFERS

2-4-6-8- EMULATE

I am currently taking 'A' level computer studies and I need an IBM PC emulator for my Amiga 500. The emulator needs to be able to run Turbo Pascal, Database and other PC programs. Could you recommend an emulator with the price and where to get it from? Also, is there a Z80 assembler emulator in PD so that I can cross-assemble to my Spectrum++2? The Spectrum has an RS232 (similar to the BT 400 series telephone socket) serial port. Can I buy a lead to link the Amiga to it or, failing that, can I make one?

I would be grateful if you can answer my questions, especially about the PC emulator, as I need to do project work at home.

Nick Lewis

There are two sorts of emulator, software and hardware, and each has its own distinct advantages and disadvantages. Software emulators are usually quite cheap but, because they have to use the Amiga's operating system to create a total PC environment, tend to be slow, prone to fall over and unwilling to run a great deal of PC software. The most popular of these was the Transformer but this was, at best, pretty bad. It most certainly won't run some of the software that you need to run.

Hardware emulators have been around on the A2000 for some time with both PC/XT and PC/AT 'Bridgeboard' emulation perfectly possible. A hardware emulator is essentially a complete PC on a circuit board that connects to your Amiga and uses the disk drives and display of the Amiga to become a stand-alone PC. Software compatibility isn't so much of a problem as the dedicated board copes with most programs. A hardware emulator is an expensive beastie with some of the whizzy AT ones for the B2000 tipping the scales at a healthy four-figure sum.

You'll be pleased to know that Bitcon are selling a rather neat XT board for the A500 that goes in the memory slot underneath and comes with a stack of slots to upgrade the Amiga to 1.5Mb of memory as well.

No spanners, welding or soldering, just send £320 to Bitcon (yes, it is expensive but you do get a lot for your cash) and look forward to running Next Base Autoroute on your Amiga. That'll tell you where to go!

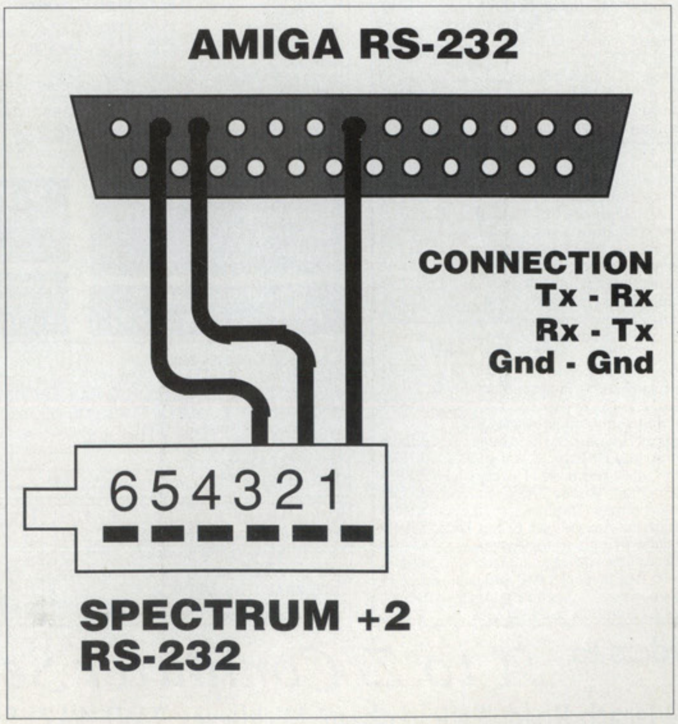
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- *Will run through TV as well as through a monitor.*

When you've saved up your cash, Bitcon is on 091 490 1919.

For your PD cross Assembler there are several PD libraries advertising in Format who may be able to help you. Here's a list to save you from having to look.

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command renamed and moved. Go to the C directory and look at ADDBUFFERS. It will have a byte count of 2608. delete this line. It is the virus and will always have a byte count of 2608.

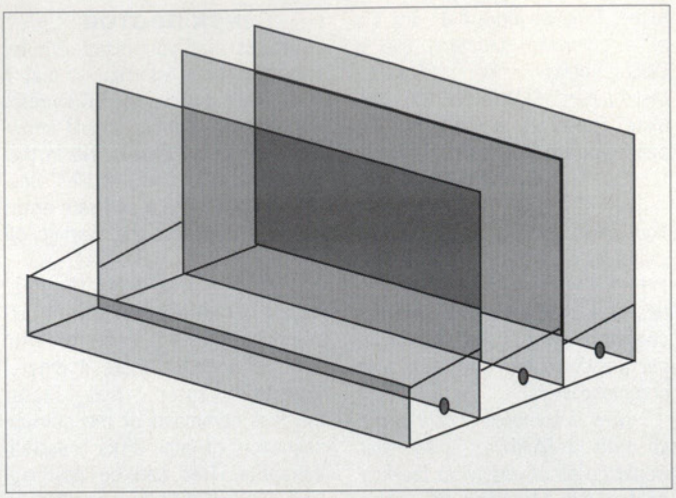
You now face a choice. Either delete the blank line in DEVs and copy ADDBUFFERS from another disk in the C directory or rename the line in DEVS to addbuffers and move it into the C directory. Remember that the blank line has spaces written to it, it is not empty and that it is the original ADDBUFFERS command renamed.

On disks that have no DEVS directory, just search for a blank line, and the number 2608. Also, remember that the command has been renamed and moved and that it may not have come from the C.Directory.

Phil Jarvis (of Team Gyton)

Thanks for an informative letter. The majority of us tend to rely on the excellent vaccine killers like VirusX and Killvirus so it certainly makes a pleasant change to see someone rolling up their sleeves and wading right in.

Your letter makes a good model for a technical subject explained in terms that the average man can understand. We'll look forward to more of the same.



A simple way to create your own disk storage!

TAKE ME FOR A DRIVE

I own an Amiga 500. After a couple of years of faithful service, the disk drive seems to have b***ered up *(I think he means 'sadly, misfunctioned' – Ed)*. I have been trying to obtain a replacement since December without the slightest hint of success.

Phoning Commodore direct was a waste of time as they won't sell spares to the public. They gave me details of local shops who deal with them, but they refuse to order one or don't know what I'm talking about. With previous computers, I've had no trouble obtaining spare bits and pieces directly from manufacturers. I turn to you for inspiration. You must know where I can get an internal drive. I don't care where the supplier is, just tell me.

Firstly, although your machine is well over a year old and past the stage where a warranty has any meaning, it isn't a particularly good idea to go digging inside your Amiga unless you really know what you're doing.

Assuming that you're a competent computer fixer, the disk drive that you so eagerly seek is available from DATAPLEX on 0753 35557. As well as supplying you the drive for £63.00 including VAT and delivery, they'll also let you pay with a credit card. What a splendid bunch of chaps. If you want to write to them they're at 10, Petersfield Avenue, Slough, Berkshire, SL2 5DN.

GETTING IT TAPED

I have a small cost-saving idea which I would like to pass on. Collect empty tape cassette boxes, separate the lid from the box, stick three of the lids together and hey presto, you are the proud owner of a disk park with three sections, each of which will hold four disks.

What does one do with the left -overs? Send them to the sellers of high-priced disk containers !

FM Phillips

And an excellent idea it is too. After scouting round the house I found several cassette cases and as well as utilising your splendid idea added one of my own. Take the first lid and drill a couple of small holes in it. Attach this to the wall. Then glue the other lids on using an impact adhesive such as 'Superglue'. You now have a cheap and cheerful alternative to the plonkerbox.

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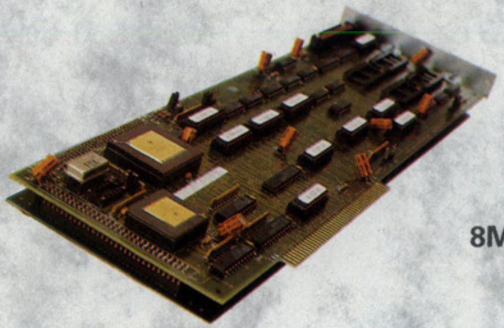
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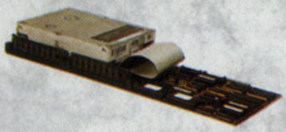
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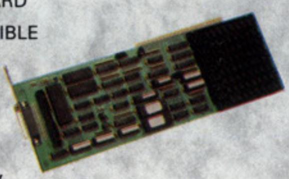
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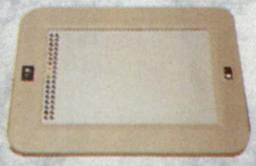
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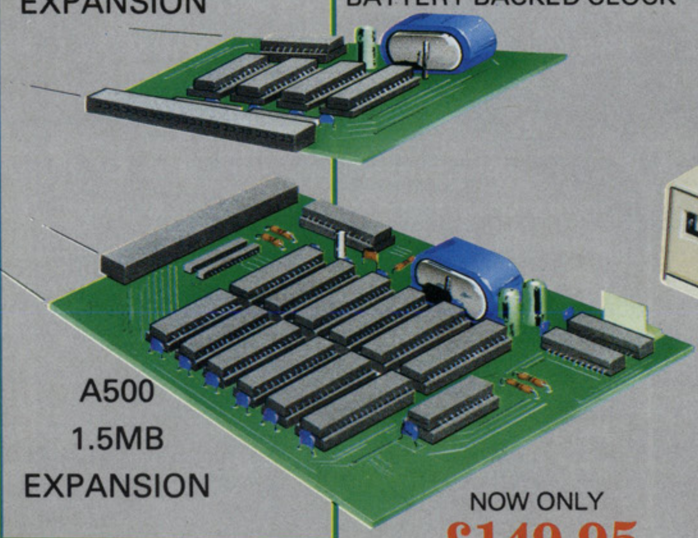
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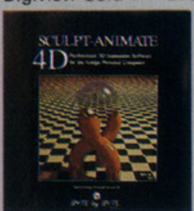


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SPECIAL K

I don't understand quite where the discrepency of 21,120 bytes has gone on my Amiga disks. According to documentation, when I format a disk in drive DF0 there should be 901,120 characters of storage available and yet, no matter how hard I try 880K is the maximum that anyone will confirm as the storage available on a disk. I assume that 880K means 880 x 1000 (if it doesn't, then why not?) and this adds up to 880,000.

We even looked in the disk drive to see if there was anything blocking it or shaving off bits of storage but to no avail.

Jeff Blomstein-Bhot
Pudsey, W Yorks

Ergggg, you are geting your kilometers, kilograms and kilobytes mixed up.

Most things are based on human (analogue) concepts that work in the base of ten (decimal) This is convenient for humans as we have ten fingers and toes (not so good for three-toed sloths though – Ed). *Computers, however, work in the binary (base of two) thus meaning that they count 2,4,8,16,32,64 and so on. The closest they get to 1000 is 1024, which is two raised to the exponential power of ten.*

1024 is known as a kilobyte. A quick trip across the keys of Casio's patent 'elektrik abacus and counting engine' confirmed that 1024 multiplied by 880 does indeed equal 901,120 thus solving the maddening mystery of the missing kilobytes.

VENI VIDEO VICI

I tried to use the graphics power and capability of my A500 to produce pretty titles for the family's home videos but it didn't work. I took the video output from the A500 and tried to 'combine' it with the output of my camcorder and record it onto the home video recorder.

Firstly I spliced the leads from the camcorder and A500 together and then further combined it into my ferguson 3V23 video recorder. The result... alternate garbage and nothing. this doesn't make sense as all of the equipment uses PAL and operates the same system. What should I do?

Veronica Madeley
Scunthorpe

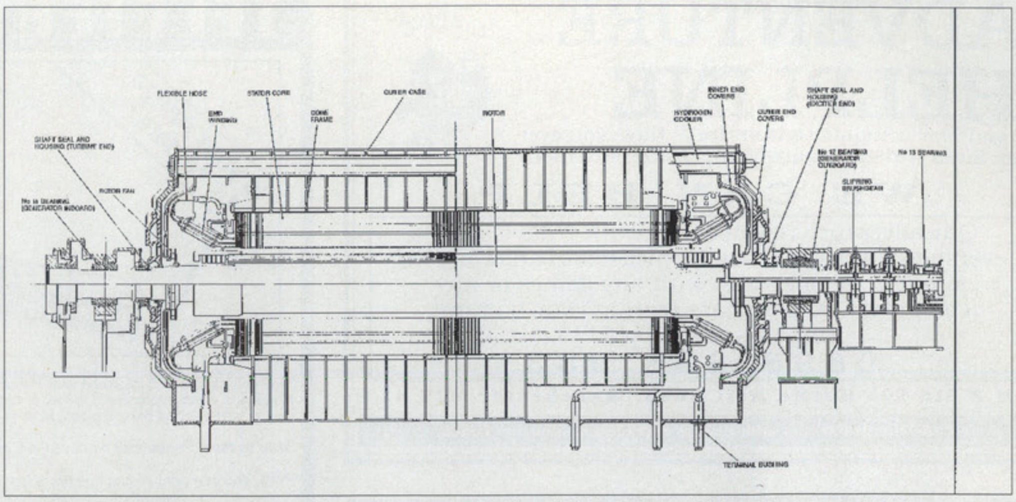
The first thing that you should do is dismantle your composite hybrid spliced lead and firmly promise never to try that again. You run the risk of killing your A500, camcorder and video.

if you wish to put professional looking computer generated titles on your videos, you'll need a device called a genlock. This takes the incoming signal from your video source and makes it compatible with your computer generated signal. once this is done, the signals can be compbined and manipulated using hard and software to produce some pretty stunning results.

Genlocks come in many shapes and prices with a cheap domestic one weighing in at about £100. This may be adequate for your purposes. If you wish a more professional result, you can spend thousands of pounds on a broadcast quality rack-mounted genlock.

If you would be satisfied with the captions on your videos coming between the visuals (like in the old silent films) instead of over the top of the, you could probably tune a spare channel of your video into the output frequency of the Amiga TV modulator and alternately record captions and live video.

The second option would be a little untidy but a lot cheaper and a lot less fuss.



A quick trip into the thundering heart of a generaturbinorefrillibulator confirms Aaron's suspicions...

AARON'S ROCK

I am hoping to emigrate to Australia next year and I would like to take my trusty Amiga 500 with me but there's only one slight problem. Will it work on the standard Australian electricity supply of 240 volts AC, 50 hertz? If the answer is no, is there anyway of converting the computer to run at that supply?

Also, does the Philips CM8833 or the Commodore 1084-D/S take its power supply directly from the Amiga?

Aaron Elridge

A hurried call to National Power and Powergen confirmed my worst suspicions. In a bid to rid the country of Aaron Elridge for once and for all, they've cunningly adopted exactly the same electrical standards as the Australians. How fiendishly clevr can you get?

Hardly able to believe your luck, I visited Grid Control, and the men who run the National Grid showed me a small three-pin socket – identical to those in my own home – from which was flowing a current of pure 240 volts at 50 cycles 3 phase, the ideal food for your Amiga. In the meantime, the two monitors that you mention don't draw their power from the Amiga, but from their own mains plug.

LEAD LEAD

I want to make up some leads to plug my Amiga into an industrial high-resolution monitor at work. The problem isn't one of compatibility but of sourcing. I have checked with Commodore UK and the makers of the monitor and the two machines are compatible. I have even persuaded the two to exchange signals by cutting up a 25-way connector and bodging a plug together.

As the Amiga is to be used for professional purposes, where can I get a 23-pin Amiga video plug from?

Johann Puntby
Derby

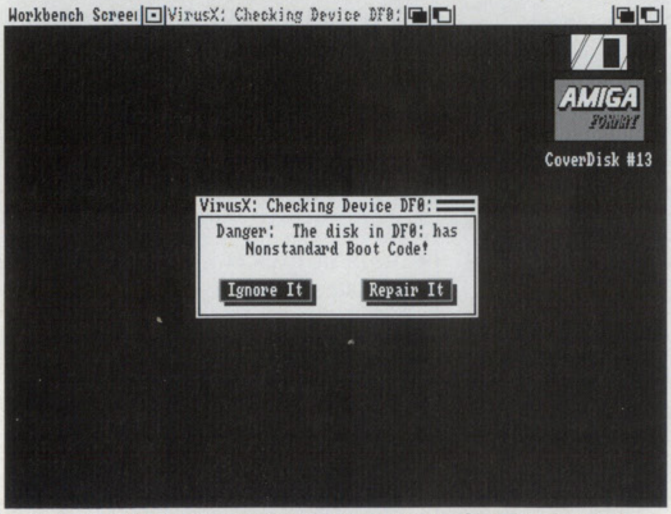
Try Paul Simpson of The Shack. He has just about every plug, twidget and fixture under the sun and can be contacted on 0332 760353 between 1100 and 2000.

MORE MEGABYTES

I need to upgrade my A500 to 2 Megabytes of memory but cannot hang it on the main expansion port as peripherals that I already have on there don't allow for extra memory.

The documentation with them says that extra memory must be put in the slot underneath. Is there a way of connecting a ribbon cable to this slot and putting a larger capacity memory board somewhere outside the machine, or must I suffer in a meagre megabyte of memory?

There's really is no need at all for the ribbon cable idea as there are already plenty of boards that go in the slot underneath that will happily take 1.5 Mb. This quite cheerfully makes the 2 Mb you need when added to the 512K already in your A500.



The very virus-busting program referred to in DISK DOCTOR, P 147.

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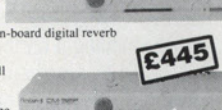
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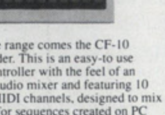
CM-64 LA/PCM
The CM-64 LA/PCM Sound Module gives a maximum of 63-voice polyphony, is 15-part multi-timbral (including rhythm part) for full orchestral reproductions and provides 64 PCM preset tones and, from the wonderful world of LA synthesis, 128 synthesizer presets, 30 percussion sounds plus 33 sound effects for the rhythm part. The CM-64 also accepts U-110 sound sample library cards and incorporates an on-board digital reverb



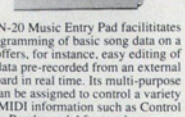
CM -64 CM-32P
The CM-32 LA Sound Module provides all the LA capabilities of the CM-64 , is 32 voice polyphonic and 9-part multi-timbral and likewise has built-in digital reverb. The CM-32 PCM Sound Module contains the CM-64's PCM section with its 64 presets, is 31-voice polyphonic and 6-part multi-timbral , has the same digital reverb, and is U-110 sound-card compatible.



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CN-20
The CN-20 Music Entry Pad facilititates the programming of basic song data on a PC. It offers, for instance, easy editing of data pre-recorded from an external keyboard in real time. Its multi-purpose fader can be assigned to control a variety of MIDI information such as Control Change Bender and Aftertouch over any of the 16 MIDI channels



CF-10
Next in the range comes the CF-10 Digital Fader. This is an easy-to use mixing controller with the feel of an analogue audio mixer and featuring 10 multiple MIDI channels, designed to mix song data for sequences created on PC or MIDI sequencer, it also enables control change messages of volume and panning to be transmitted to external MIDI devices

CA-30
Last of the modules is the CA-30 Intelligent Arranger. Designed to be linked with the CM-64 or CM 32-L, the CA-30 is a sophisticated auto arranger with similar intelligent arranging functions as found on Roland's best-selling E-20 Intelligent Synthesizer. With the CA-30, even complete beginners can create interesting and convincing song data



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GAME Busters

The summer months are upon us! Pop festivals are coming, the sea is calling and that weather is far too nice to ignore. But this last level is causing so many problems... Never mind! **MAFF EVANS**, the man with a map and a smile for every honest gameplayer, has a hatful of tips for all you despairing people.

CHAMPIONS OF KRYNN

You've donned your armour, given yourself a ridiculous *nom-de-plume* and sat yourself down in front of your Amiga to set forth on your quest, only to fall foul of the first creature you meet. Don't despair – here are some hints along with a couple of lovely maps to help you on your way.

CHARACTERS

To achieve any level of success you really need to operate as a knight. The best combination of characters is usually Fighter, Knight, Ranger, Cleric, Red Mage and White Mage. When you first create a character choose the best armour class, as all the other attributes can be modified on the main screen, including hit points.

THROTL TOWN

The Commandant at the outpost will request you to go to Throtl to save Camaron. Go to the town and head towards number (1) on the map, which is where Camaron is to be found. Beware of the first person you meet, since he's a spy. When he asks to join your band, show him the respect he deserves and attack him. Once he is out of the way you can head off towards Camaron, allowing anyone else who wishes to join to tag along.

When you find Camaron, he will tell you that you need to get a key, which is found at position (2). Once you have found the map, head up the main passage until you find the 'secret' passage. Go through and head for the temple located at position (3). Take out any hostile creatures you may encounter and head towards position (4) which is where you will find the stairs to the second level.

THE OGRE'S BASE

As soon as you enter the tomb, turn right and enter the first door on the right. Here you will receive some useful information. Always try to be polite and greet any ogres you meet. The first few will attack you anyway, but don't get disheartened, as all the ogres will greet you afterwards.



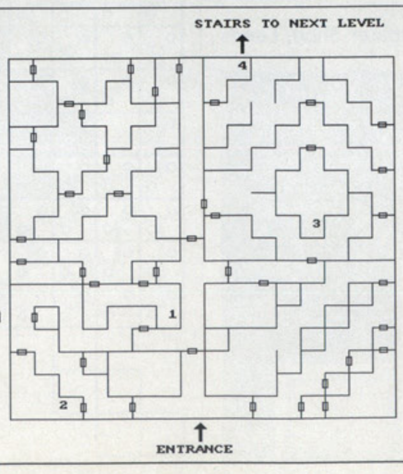
Explore the camp thoroughly using the map and once you've checked everywhere go to the ogres' meeting at position (1). When they ask you, tell them about the assasins. The letter you should have will corroborate your story, so they will consider you allies and join you for the big fight. Shouldn't do any harm to have such weight behind your ranks!

CARAVAN

Buy and ready the weapons you need and set off. Head towards Throtl and you will come across a caravan that is under attack from Draconions. Attack the marauders using magic whenever possible.

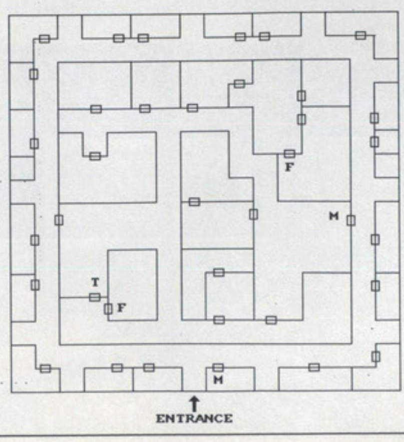
Once you have achieved a stunning victory, you will be asked to escort the woman back to the outpost. Agree to the task and once inside the outpost visit the hall to train your characters. Once

The Town of THROTL



1 – Camaron's location
2 – Magical Key
3 – Temple, where main battle takes place
4 – Stairs to upper level

OGRE'S BASE



T – Treasure and experience points
F – Encounter with hostiles
N – Ogre's meeting for Main battle
M – Places that MUST be visited

your team has worked up enough of a sweat, it is time to go and visit the Commandant.

THE TOMB

Once all the training has been done and you've seen the Commandant, leave the outpost and head North-West where you will find the tomb.

Enter the tomb and undertake the tests of honour, fear and battle. Once you have completed the final test, you can leave the tomb. Watch out though, as you will meet and have to do battle with some Draconions.

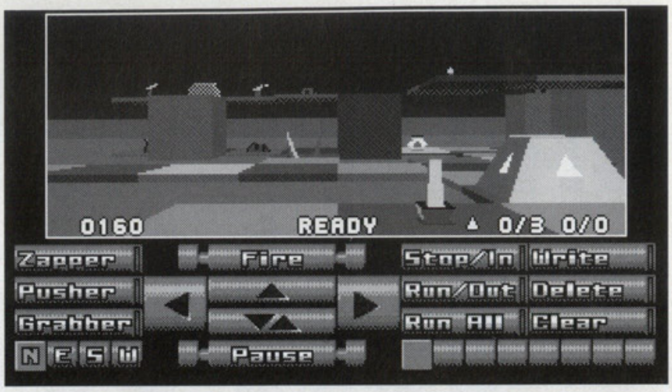
The hardest test you wil be confronted by is the battle test. Always use the Knight for the tests and act as a true Knight does, taking the honourable option every time. For example, when you find the treasure room, don't try to steal anything!

The test of fear is simple. All you have to do is walk into the fire-rings. Don't worry even if your hit points are down to one, as you will be healed after the test.

Maps and hints sent in by Gandalf and Waz (?), Ringwood,Hampshire

TOWER OF BABEL

COVERDISK DEMO



Talk about being thrown in the deep end (Okay – being thrown in at the deep end is an interesting expression, meaning either placed instantly in a difficult situation, or alternatively, taking it's more literal connotations... OH SHUT UP!), the Coverdisk demo of Microprose's superb 3D puzzle game was a tad on the difficult side. Oh all right it was damned difficult! However it is possible, and we have the solution to prove it! Just follow these instructions along with the map to achieve success.

Move Zapper North one space to square G1.

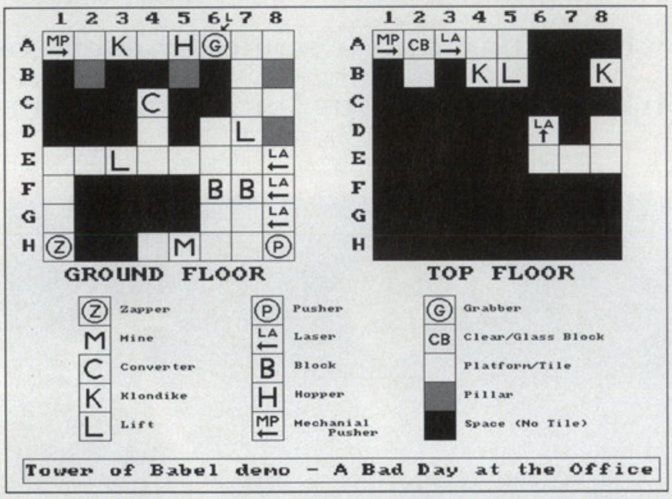
Jump to Pusher and move forward two squares to H6 and press fire. The mine will now move to H4, where it can explode safely.

Turn Pusher to face North and press fire. The block in front of you will move forward to block the laser turret at square F8.

Go back to Zapper and move North one space to F1.

Turn Pusher right to face East and move forward one space. Turn left to face North again and press fire. When the block stops sliding, press fire again to move it one square further, so that it protects Zapper by blocking off the next laser turret.

Move Zapper North again and turn right so that it faces East. Move forward five spaces to square E6. Go North one space, then East one space so that you are on the lift at square D7. Press the up/down button (the one above pause) to ascend on the lift. Turn to the West and press fire to blast the laser turret into pieces.



Switch control to Pusher and move to square H4. Turn to face North and wait for Hopper to bounce into view on the far side of the arena. Fire through the converter on square C4, which will change the push shot to a zap shot to destroy the Hopper.

Switch to Zapper and move to the lift on square E3. Go up the lift and face North. You will see a laser turret in front of you, but DON'T blast it just yet.

Go to Grabber and press the up/down button to go up on the lift. As soon as Grabber starts to rise, switch control to Zapper and press fire to send the turret into a mass of particles. As soon as you've loosed off a shot, switch back to Grabber (who should now be at the top of the lift) and quickly move one space to the West. You will see a glass block moving towards you, but don't worry – it will stop before it crushes you! Turn to face West and press fire to grab the Klondike in front of you. Make an about face to look East and fire to grab another one. Hit the up/down button to descend on the lift and move North one square. Turn to the West and hit fire to grab the last Klondike. And there you have it – the level is complete.

If you have enjoyed this puzzle experience then Tower of Babel is now avai...STOP! That's quite enough of that, thank you VERY much!

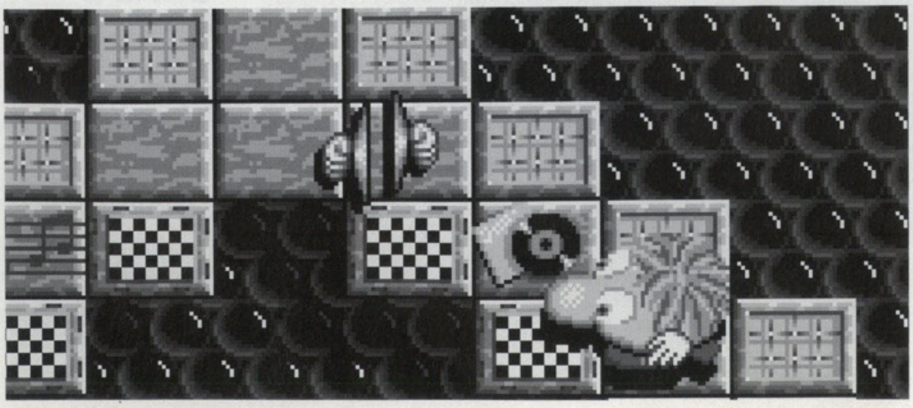
Robert Baker, South Chailey, East Sussex

JUMPING JACK SON

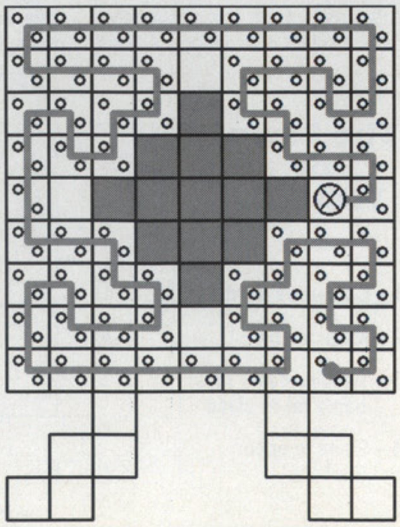
Having trouble getting through the challenge stages? Well just sit and listen to the music then! Whaddya mean that's not enough? Do you think I've got nothing better to do than sit here telling you how to do every little thing? Oh, all right then, you've talked me into it.

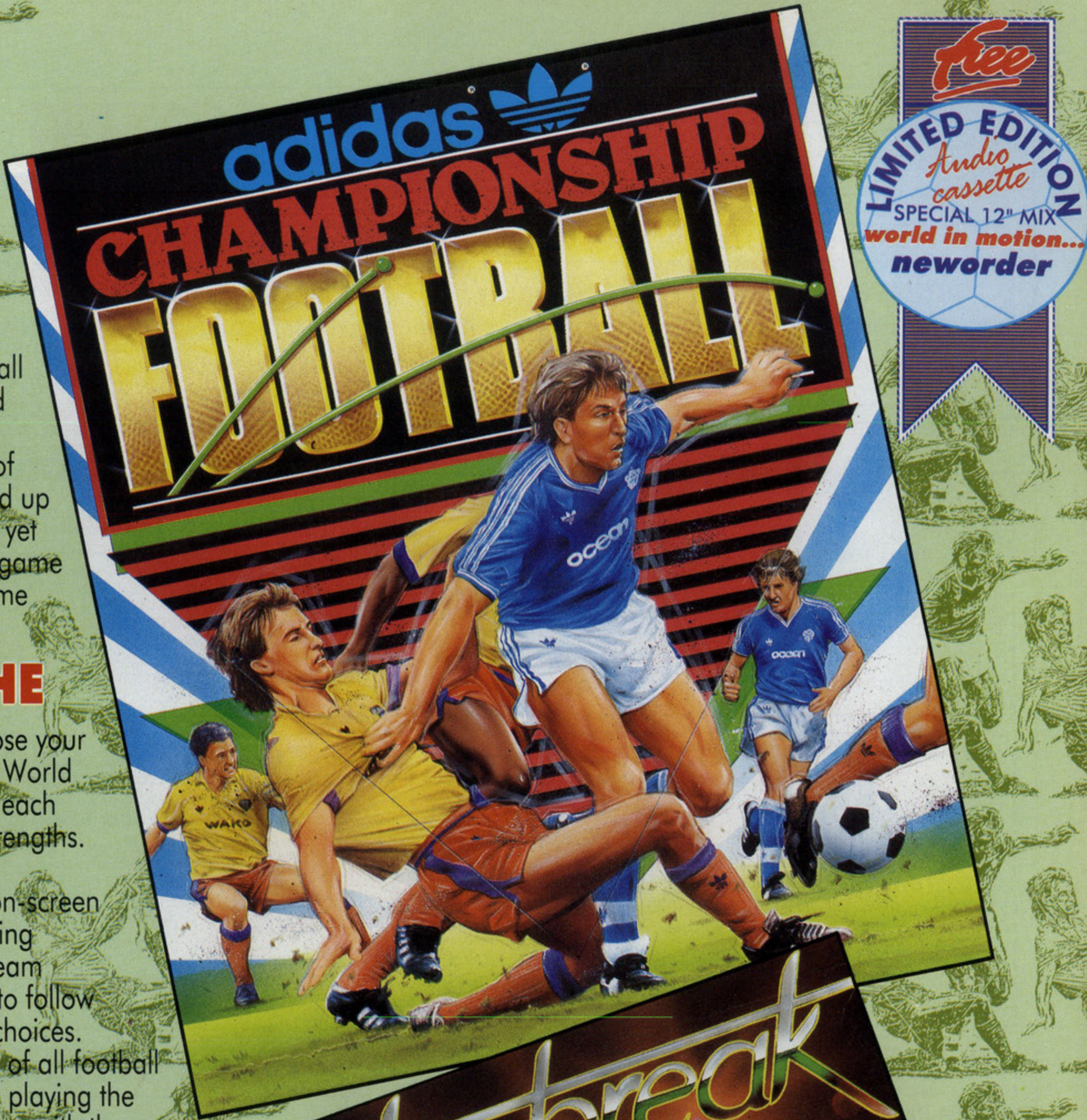
Just have a shuftie at the diagram for the correct path through the first challenge stage. If the others are still causing problems, don't panic. Here are the codes for the higher stages: **Level 5 – ROCKNROLL, Level 9 – NOISES Level 13 – ELVIS.**

Paul at the Computer Shop, Leeds



Challenge Stage One

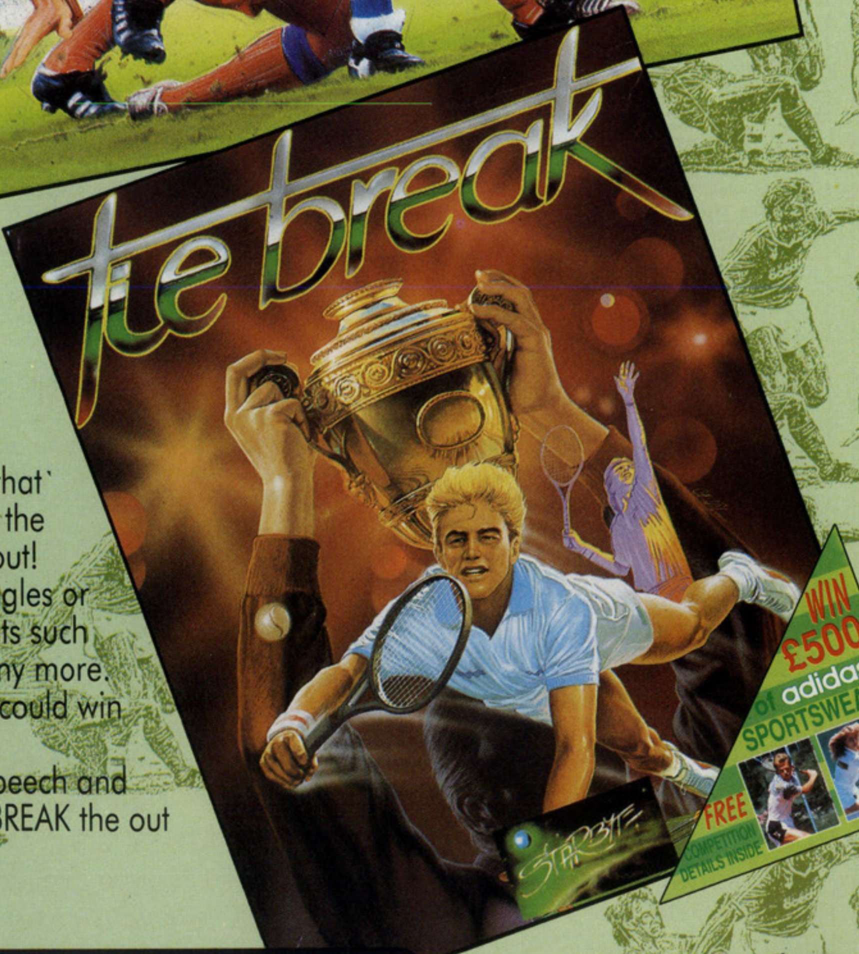




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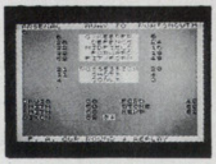
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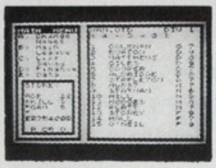
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Are you a scruffy piece of string?
Are you trying to take me for a sucker?
Are you trying to rip me off?

Can't we compromise?
Come on, we're both businessmen.
Could you reduce the price please?

Does it come with a guarantee?
Does it have a petrol tank?
Does it run on nuclear power?
Does it run on unleaded?
Does the imredifluidator work?
Don't be daft, frog face.
Don't make me laugh. *
Don't push me.

Go ahead punk, make my day.

Has the car got rust?
Have you got the time? *
Heads or tails? *
Hey, I'm paying cash you know.
Hmmm...I did want some extras also.
How about a round of golf?
How's the sub-frame?

I can't really find that much.
I could MURDER a curry.
I think it's started to rain.
I need a second mortgage.
I ought to knock your lights out.
I used to know your mother.
I'm a lumberjack.
Is it fitted with CAT?
Is that a wig you're wearing?
Is the car insured?
I've got a cat called Garfield.
I've got a garage.

Make me a better deal than that.

Not for a rustbucket like that.

That's a disgusting suit.
That's a fair profit margin.
This parrot is dead.

You got moths in your wallet?
You know you ain't half mean.
You're asking for a bunch of fives.

Ullo John, got a new motor?

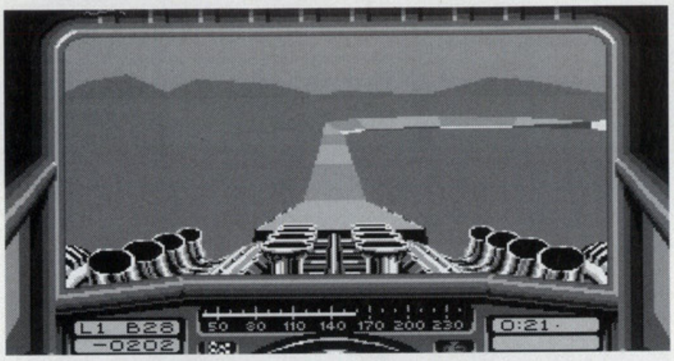
What is the airspeed of a swallow?
Won't you take less?

Those responses that have an asterisk next to them are a bit iffy, and only work sometimes. If you do use them, cross your fingers and hope!

Adam Powell,
Crowborough, East Sussex

STUNT CAR RACER

Here are some tips on coping with various tracks for all you demon drivers out there!



LITTLE RAMP
Take the first corner at full belt and tackle the ramp at 150 mph.

HUMPBACK
Accelerate around to the hump, so that you reach 200 mph by the time you are half way up. At this speed you should have a fair jump and landing.

On the other ramps, keep either below 130 mph or over 180 mph. Anything between these speeds will result in heft damage. The rest of the track should be taken at a speed of something around 170 mph.

BIG RAMP
Take the first two small ramps at 170 mph, then get up to 210 mph for the main ramp. The rest of the course should be a doddle.

STEPPING STONES
Head down the starting straight at 110 mph and take the second gap at 100 mph. When you get to the steps, push up to 140 mph and nudge the speed up if it falls below 110 mph.

HIGH JUMP
Get up to 210 mph from the start to clear the jump and keep under 200 mph for the small jump. You can tackle the slanted road in two ways – either keep at the top and keep the speed up, or give the car a nudge to the right every now and then. If you slip off, push fire and push forward and right instantly.

ROLLERCOASTER
Keep under 110 mph on the first hill, and you should take the bumps fairly easily. Remember – don't push too hard!

SKI JUMP
Keep below 100 mph up the first hill and on the second keep to around 140 mph, slowing down after the jump. For the big jump, get to 220 mph, but if you can't manage it just crawl around and you'll live.

DRAWBRIDGE
At the drawbridge, put the pedal to the floor when the bridge has gone down about halfway.

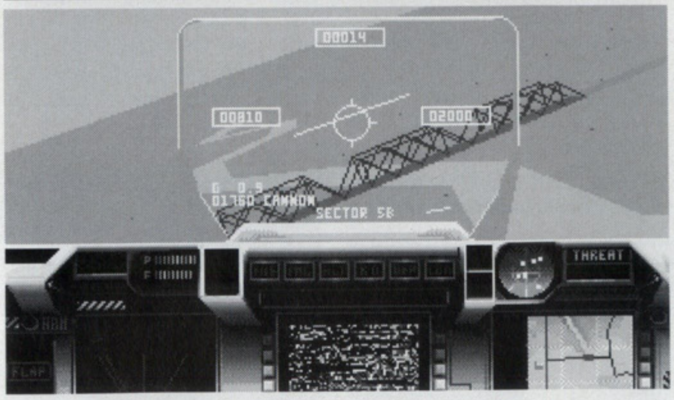
Tackle all the hills to the next ramp at 140 mph, then on the bumpy section head down the middle of the track at 170 mph. Lastly, get up to top speed for the down hill jump.

GENERAL HINTS
If you get stuck in a hole, drive slowly to the wall and accelerate with boost. You should hit the track or drive off the edge, minimising damage.

At the beginning of a race, accelerate and then pull left to block off the other driver – you may even manage to run him off the track completely.

David Norfolk,
Watford, Hertfordshire

F-29 RETALIATOR



There's nothing worse than finding yourself stranded in mid-mission with no weapons! To avoid this, simply enter your name on the enrolment screen as CIARAN, then load up your pilot's log.

The name should now read OCEAN OK. Now you can fly any mission with the benefit of infinite missiles and cannons.

Bryn, Winston,
Bardsley, Oldham

CONQUEROR

Imagine the headlines... MEGA-WEAPON PACKING TANKS ARE DESTROYED BY MERE DUMMY COMPUTER ENEMIES. A bit on the embarrassing side, what? Well, to stop this from happening in Rainbow Arts' superb tank-battle simulator have a shuftie at these official hints from the developers themselves (nothing but the best for *Amiga Format* readers, doncha know).

German tanks have a worse hill climbing ability than both American and Russian tanks. This point determines strategies for both divisions – if you're playing as the Germans, a good tactic is to wait at the top of hills and rush down at the enemy when they approach, whereas if you take control of the allies, then it's a good idea to escape by heading up the steepest hill, so as to slow down any tanks that are in pursuit.

The program actually works out the angle of incidence of any shot, and uses the data to calculate the most effective use of armour. Therefore an oblique shot on a tank will have more armour to penetrate than a 'square on' blast. So if you are under attack, try to make sure that the enemy have to fire angled shots, but if you are attacking, then try to get a good, straight (that is 90 degrees) shot to do the most damage.

Front armour is the best defence on all tanks, so always try to face the enemy straight on so as to present the toughest face. For this reason, you should also try to attack enemy tanks' flank or rear where they are less protected.

One of the most sensible tactics to use (the computer player employs this) is to form the heavy tanks into groups and leave the light tanks to reconnoitre. This means that the lighter, faster tanks can act as your 'eyes', giving advance warning of enemy manoeuvres – they can also run away quickly! The tactic they use when under the auto-driver, is to run away from anything they can't shoot, reporting the sightings to your force. You can then move the heavy boys in tackle the situation.

When using map firing, always remember that any shells fired will take about 30 seconds to hit the ground, so try to judge where the enemy tanks will be when the missiles strike and aim your guns there. Be warned, however, that computer-controlled tanks don't look for map fire, so keep clear of the area until all the shells have landed.

Don't go for a whole bunch of heavy guns, instead try to build a balanced tank-force. Light tanks are useful for reconnaissance and also as an emergency reserve, whereas heavy tanks are good for straight head-to-head battles. Medium tanks combine the advantages of both light and heavy vehicles, but lack the speed and firepower of the others.

Don't forget to use your drone tanks! Direct one to hold an enemy tank's attention while driving your tank to their rear from where you can unleash a powerful attack. Watch out when doing this though, as the computer tank has two objectives – to both defend itself and attack any player tanks. Thus it will turn it's strongest armour towards the most powerful gun and take out the lightest enemy tanks.

THE TANKS

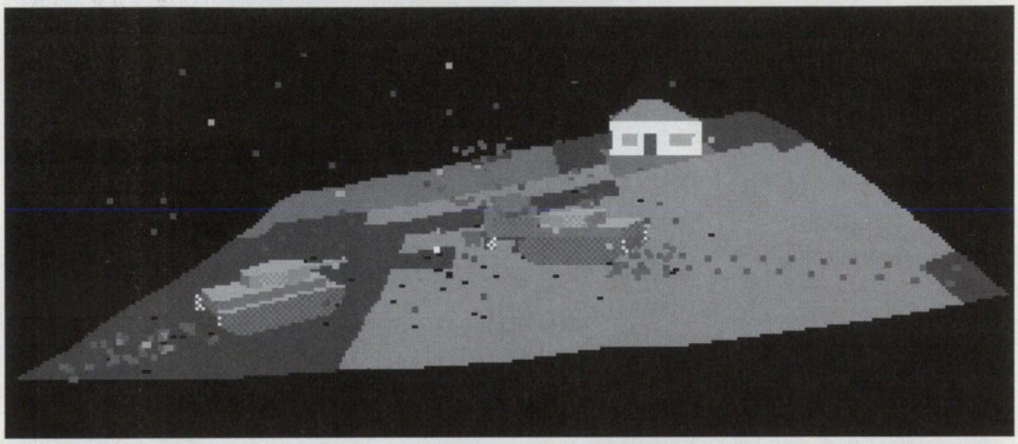
Different tanks are useful for different things, and experienced players will be able to utilise the individual strengths of each. Here are some notes on the strengths of some different tanks:

CHAFFEE – very fast and cheap.
M36 GMC – Also very fast and has a good gun, but does suffer from fairly weak armour.
SHERMAN FIREFLY – Good gun, medium speed capacity and quite adequate armour.
PERSHING – Has the same gun as the M36 with medium speed, but does have the advantage of good armour.

PANZER III – Very cheap, but not particularly good at any one thing.
PANTHER – Excellent front armour, a good gun and arverage mobility, but the side and rear armour are both on the weak side.
TIGER 1 – Excellent all-round armour and good gun.
KING TIGER – Best armour and gun of any tank, but travels slowly.

T34/76 – Good all-round armour (as with the other Russian tanks), good gun but has average speed.
KV1S – Better armour than the T34/76, but has the same gun.
KV85 – Is blessed with a better gun than the KV1S has.
JSII – Excellent armour and gun and has good mobility.

Thanks very much to those friendly folks at Rainbow Arts for these helpful bits of advice.



WINNERS!!

This month, prizes go out to Gandalf and his mate Waz for their *Champions of Krynn stuff,* and Robert Baker for his mega-useful *Tower of Babel* instructions (it made sure I could stop playing enough to get some sleep anyway!)

Being techno whizzes here at *Amiga Format,* we can stick IFF pictures straight from the Amiga into our Macs. So if anyone out there want's to send in maps drawn on *DeluxePaint,* then they may well find their works of art winning some dosh! Send any maps and tips to GAMEBUSTERS, *Amiga Format,* 30 Monmouth Street, Bath BA1 2AP. Oh and PLEASE include a phone number wherever possible – we may need to get in touch with you!

NINJA SPIRIT

Wails of frustration and keyboad bashing brought about this major cheat discovery. After losing badly, these poor readers tried to smash hell out of their Amiga, and happened upon this helpful item. Press F9 to pause and then press all the lettered keys in one go. The game will now restart without you having to press F10, but with the added bonuses of invincibility and infinite time. Can't be bad...unless you've got small hands and can't reach all the keys!

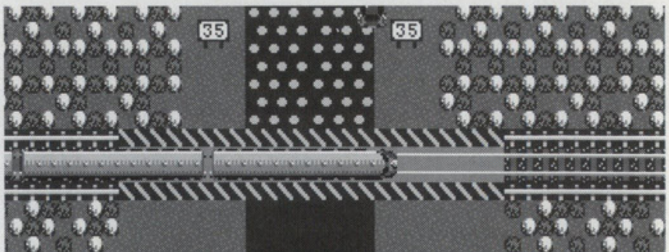
R and T Parkhouse, Basingstoke, Hampshire



APB

Bored of pounding the same beat over and over again? Well if you push the firebutton and push forward on the joystick while the music is playing, you can select to start playing on any of the 16 levels. Now hit them streets, Officer Bob, and the best of luck ("mmmr-rrnnuurr... Thank you very much well done").

Matthew Gare, St Ouen, Jersey





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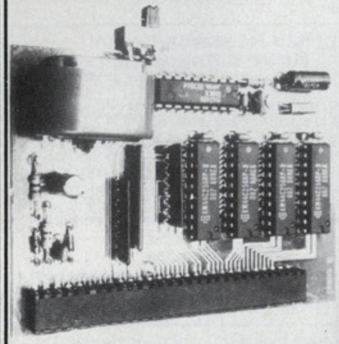
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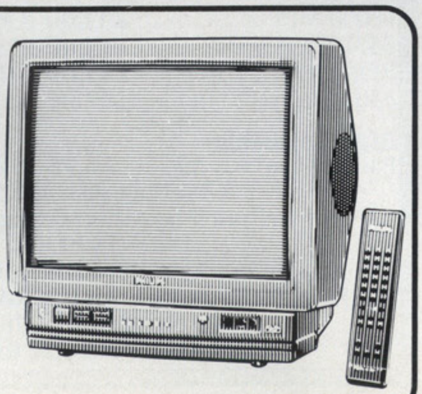
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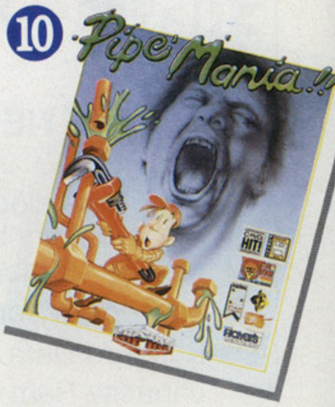
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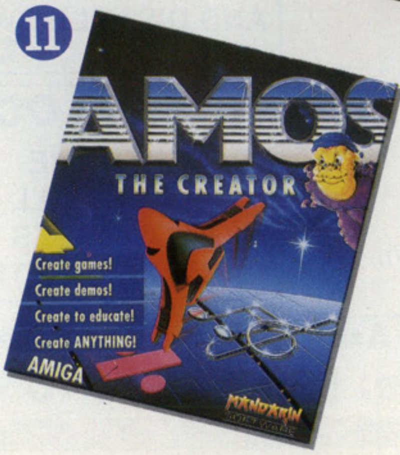
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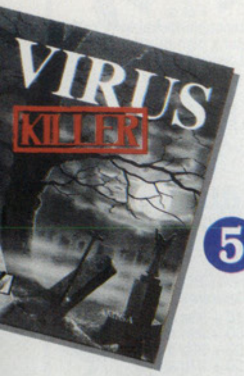
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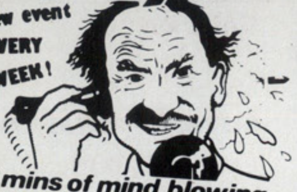
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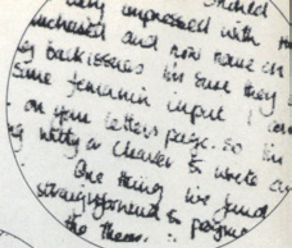
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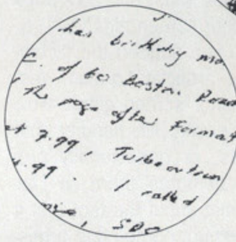
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Letters





Address your communications to **BOB WADE** care of **30 Monmouth Street, Bath, BA1 2AP.** If it's good enough to be printed and escape the Origami treatment it could win you a T-shirt and binder.

Sing a Rainbow

I read your article about *Rainbow Islands* (June 1990) in your Gamebusters column. Under The Crucial Codes you gave the code SJBLRJSR. We noticed you said "we don't know what it does". It's easy: it doubles the points of the caterpillars! Thanks for the clues!

Chris Ball
Hove East Sussex

Aled Jones?

C'mon, who do you think you are kidding! I am of course refering to your 'music for the masses' feature in which you reckoned to print a piccy of Dan Lennard (Issue 11) but in fact printed a piccy of Aled Jones – you know, the little Welsh prat of *Snowman* fame!!

Also, surely there's some mistake in the Omnibot compo, I slipped a fiver in with the answers, so I should have won!!

Mick Heyes
Nelson, Lancs

PS. Tune in next month when I shall send instructions on how to construct an A2000 using a cornflakes packet and a washing-up liquid squeezy bottle!!

Problem Children

I am currently working in the field of child psychiatry where it has been my privilege to treat a number of children with emotional and behavioural problems. I have noticed two things over and over again: firstly that there is a high frequency of marital disharmony and separation in the homes of these children but also they almost all possess home computers (usually C64, Amiga and Spectrum). The latter is a new phenomenon of the age and along with TVs in the bedroom and videos provide an easy replacement for parental involvement.

While the most influential cause of problems in the children is the lack of a stable home environment, the secondary effect is unsupervised and prolonged use of the new technologies. Learning theorists have shown that children pick up behaviours and attitudes from their environments via what is called observational learning and it is this which causes me concern. For example, in experiments with higher apes and children it has been shown that if they are exposed to films of aggresive behaviour they will play aggressively. It has been found that boys are more at risk than girls and frustrated boys more at risk than calm secure boys.

This simple scenario brings me to the conclusion that the vast content of computer games involving extremely violent game-play, with the latest games showing explicit combat between humans (the sword/sorcery market, Ninja martial arts games and "Rambo" games are aimed at school children and teenagers in particular) cannot be doing anything other than brutalising the conscience of a whole generation. At worst the vulnerable population of youngsters I mentioned would be lead into further problems, at best society's tolerance of an increasingly violent culture rises. (eg Hungerford, etc).

Parents generally are computer illiterate and separated by a technology gap from their children and I would suggest some form of guidelines as to the content and style of games. Legislation re both professional and public domain software is needed: however I doubt that realistically this will happen in the near future.

I also feel from the boyish tone of some of your games reviews that people have not taken seriously that the content of your fantasy life cannot be separated from what you are as a personality. Perhaps I'm too old!!

Dr A J Bell
Newcastle-Upon-Tyne

Escapism is the central theme of most games, but I think it is overstating the case to say that the sort of violence displayed in computer games is having any affect at all on children in the manner you suggest. In my experience children have an excellent grasp of the difference between games and reality.

My Friend's is Yellow!

Why is my friend's drive light yellow and all the other people I know have green ones?

Ben Bashford
Greenwich, London

Maybe it's got jaundice – has it been over indulging in the demon drink lately?

Pipemania Cheat!

There is something that is totally baffling me. Has anyone else noticed that on the advert for *Pipemania* (*AF* Issue 10, Page 51), there is an AF Gold award being displayed, when in fact the game only recieved 81% in the review in the previous issue?! Is this a spot of dishonesty on the part of Empire, I wonder?

M Thanki
Chatham, Kent

It certainly isn't down to any dishonesty on anyone's part, there was a misunderstanding between ourselves and Empire that lead to them using the logo on their advert. Pipemania *didn't get a Format Gold award, but it is a very good game.*

Half-Witty

QUESTION: What have the following phrases got in common?

WIRED FOR SOUND
THERE IS NO ALTERNATIVE
VIDEOSYNCRASY
SURREAL THING
MINDFIELD
FOR YOUR EYES ONLY
SPLIT DECISION

ANSWER: They are all phrases that have been printed on the spine of *Amiga Format*. ANOTHER QUESTION: Why?

R J Cranefield
Surrey

Why not?

Constructive Criticism

Cover disks: 1) All hacks should have a cancel option. So should all games. The fun of re-booting palls very rapidly.
2) Personally, I would prefer it if you used only standard bootblocks. Having a banner saying that the disk is virus-free proves nothing.
3) I would rather have everything iconised so that I can choose the featured game demo or whatever else is offered without having to re-boot. Your recent menu format solves this problem nicely.
4) Don't forget the CLI and MORE.
5) Let's settle for one text display program and let's make sure it fills the whole PAL screen.
6) Don't strip files which were originally included with PD material and are referenced in the .DOC files. Recent examples: ACC!.COLOR, UPDATE.DOC, FUTURE.TXT, RD.
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8) Don't assume that the user has DH0:, as you did in #10, WIPE-OUT.
9) Include version numbers in filenames to make it easy to see whether we have to update old files.

ARTICLES: Please mention the type of protection when reviewing games and other programs. (ie dongle, codeword from manual) and whether the supplier has made it possible to copy to hard disk. Please specify whether a PAL version is offered.

ADVERTISING: Advertisers asking for a SAE would be well advised to mention the amount of postage required for responses to foreign readers.

Frank Chambers
Newport, Ireland

F-29 Bugs

I wrote a letter to your sister publication *New Computer Express* outlining the failings of the recently-released game *F-29 Retaliator*. This letter was published in the 12

May issue, and the comment from the editor was that he had consulted with the *Amiga Format* staff who said that "most of F-29's bugs are just minor screen glitches".

Ah, so you noticed the flickering on the artificial horizon. Yes, that is a minor screen glitch. How about the erratic file handler that loses pilots, or occasionally promotes or demotes them at random? Or what about the fact that if you land without completing a mission you can't exit the plane except by ejecting (while on the runway!)? Screen glitch? How about the fact that the radar won't pick up SAM sites? Makes approaching enemy defences doubly difficult, but perhaps it's a minor screen glitch. What about the fact that some of the control keys have no effect? Minor, of course.

Then there's the fact that the forward radar doesn't work at all, making it impossible to identify targets unless they are so close you can see them by eye. Or the equally disastrous problem that the air-to-ground targetting system is completely non-functional, leading to the ludicrous situation that the only way to hit anything with a cruise missile (range 300km) is to line it up by sight at point-blank range! Yes, these are all minor screen glitches, aren't they?

Well, if you think that, you have no business reviewing software. I see that in the latest *Amiga Format* you have actually given this bug-ridden program a Gold rating. I hasten to point out that the above flaws are not my imagination; they were admitted in a conversation with a member of Ocean staff. Much as I enjoy reading your magazine, I can tell you this, I am never going to trust one of your reviews again.

Roger Musson
Edinburgh

To judge us on a quick comment printed by one of our sister mags is rather unfair. What we were trying to convey is the fact that although F29 was bugged, they were not the sort of bugs that crashed the machine or made the game unplayable. I agree the bugs you mention are a problem and that Ocean should sort them out.

As for our review – we don't see our role in such circumstances as being to check that every little thing in the manual is accurate, it is to check that the game plays well and that all the important features work properly. On our review copy the game came up to scratch on all counts. Maybe you have one of the early bugged copies – contact Ocean and ask for a replacement copy.

It Doesn't CLIck

Why has the Amiga got such an awkward CLI? In your stand-alone Notepad you corrected the bit with the exclamation marks, and you said to repalce them with vertical bar symbols; where on the keyboard are they? I've tried backslashes and the other one the other way and even none at all, but all it does when I press return is whizz the disk round and say something about object of the wrong type.

Phillips Dickens
Raunds, Northants

At the top right of the keyboard, just to the left of the backspace key, is a key with the symbol \ on it. This key also has a broken vertical line on it, the one you need.

High Price of Piracy

In recent issues you have published letters which try to justify piracy of software because of high prices. Having been involved in buying business PC software, where prices are normally in several £100s or even £1000, I find Amiga software rather cheap considering the size of the market. Software houses must make a reasonable profit to finance new developments, so the pirates are putting at risk the whole home computer market.

As the Amiga is such a powerful machine it would seem a pity if honest users were denied new and innovative software by the thoughtless actions of others.

Regarding the differential in prices between the US and the UK, one element is the retailers' mark-up. In this country retailers expect a larger profit; look at the mail-order houses if your funds are tight, this month's Number One is often on cheap offer in a few weeks.

One other point, have you considered the potential harm to family budgets of the appetising reviews of hardware like the 20 card (ideal for fractals?) and programs like Digi-View IV? Children could starve if you don't stop, mine included!

Chris Eele
Lychpit, Hampshire

Airport Accident!

I bought an Amiga 500 just before Christmas because I wanted a machine that would do all my word procesing and other serious work as well as provide endless hours of amusement for our two sons; I must admit that it has done the trick on both counts.

I discovered *Amiga Format* (Issue 6) quite by accident at Newcastle Airport waiting for a plane back to London. I saw this magazine with a disk on the front and I have never looked back.

I have been particularly impressed recently with the "Which" style reports on business software. It is very useful to be able to directly compare products in this way and I hope you will continue with similar reports on other types of software and hardware.

I have also been following with interest the correspondeance on software protection and piracy. I suppose that I have some sort of vested interest in this topic because the company that pays my salary sells large, mainframe, business software packages.

Having worked in the computer industry for over 20 years now I find it an anathema to have to mount original media on any device except for the express purpose of taking security copies. It is particularly annoying as far as my Amiga is concerned because after spending a lot of hard-earned money on a hard disk it spends half of its time idle as most games cannot be copied onto it. In fact, I wrote to one well-known games software house about a program which I was able to copy onto the hard disk and they said that there was no way they were going to change this policy as there was not the market for it.

I am dead against software piracy in all its forms, but I am convinced that if the software industry showed half the wit and ingenuity of the hackers and the pirates then a solution that covered both protection and the ability to make working copies could easily be designed.

To change the subject to one which is rather less emotive, I decided to index both your game reviews and Gamebusters on my personal database. After spending several hours on this, the thought occured to me that most databases will accept data form comma-delimited ASCII text files. It further occured to me that you have the perfect delivery mechanism for this in the shape of your cover disk. How about issuing an index on one of your Coverdisks in a format acceptable to most common databases.

One last point: I enjoy roleplaying adventures and there have been several references in your magazine to *Dungeon Master* as being the best of this genre. I do not know if you have reviewed it in an early issue; but, if so, what was its score summary in terms of Graphics, Sound, Intellect, Addiction and Overall % rating?

Roy Bell
New Malden, Surrey

Dungeon Master *is available for 1 Meg machines only and, although AF has never reviewed it, we reckon it deserves these ratings now:*

Graphics	*8*
Sound	*4*
Intellect	*8*
Addiction	*9*
Overall	*92%*

Mad as a Balloon

I am writing this with my foot as the people in the institution won't let me take the straitjacket off – rotters!!

Firstly, I would like to say what a brilliant game *Blood Money* is. After a year I finally completed it the other day, yet still have urges to 'have another go'. Well done Dave Jones!

Now I would like to thank Sam Cadby (*AF* 11) for his tips on using my funny kettle – I followed them closely and had a steaming cup of tea in no time! I think the anti-static wristbands made all the difference. I think that the Amiga makes a wonderful cheese-grater as well, and wouldn't make a sandwich without it.

Finally, I have a wonderful idea that would improve your magazine greatly. Since I took up cookery I found the flat thing on the cover of your magazine to be absolutely rubbish at making Angel Delight. I am sure many other readers feel the same way and that many will have complained. If you were to change the name of it to the "CoverWHISK" and to actually include a 3.5" whisk on every cover, then your readership would greatly increase.

I must go now as my soufflé is ready.

Karl Drinkwater
Stretford, Manchester

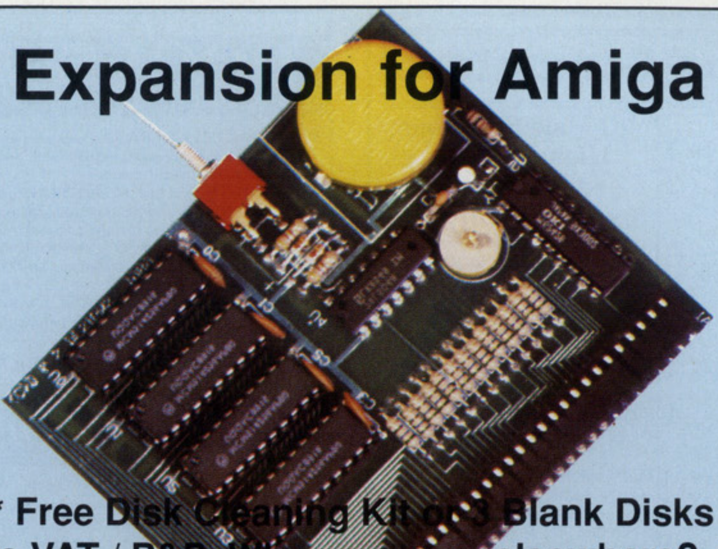
PS I attached one of those 'RAM disk' things to the front of my car but it crumpled on the first collision. Will you complain to Commodore or shall I?

You're a very funny man Karl – keep taking the pills and writing the letters. A special prize is on its way because you've already had a T-shirt and binder a few months back – we'll find something suitably batsarse.

Trouble with Women

I have a serious problem with women! Why is it I can never find a woman who will accept my Amiga? Every time I find a new girlfriend she can never accept that my Amiga is the most important thing in my life, and that it deserves my utmost attention. I mean, they go too far, don't they?

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For example, my last girlfriend could not undertand why I spent 23.5 hours of the day in front of it and in the end she even wanted me to leave my Amiga and take her out and talk to her!!!! Well, I couldn't have that so I told her to bog off!!!

I have written to tell you because you normally answer all Amiga problems. Anyhow, do you think my attitude is in any way wrong? Please let me know, because my sanity is going down the tube quite quickly Wibble...!

Nick Margam,
West Glamorgan

PS I think it would be a good idea for you to review girlfriends.

If we were to indulge in such a sexist act, the expected lifespan of those members of the AF team that have girlfriends would be about as long as it took someone to read this reply.

Yoga Positions

I have just read the letter titled 'Dear Mr Perfect' and quite frankly I can think of several yoga positions that I would like to put 'Anonymous' in.

I personally am an aspiring games programmer. Although my games are still weak and poorly implemented, my experience has meant that I can see the amount of effort that goes into writing a bad game. So, I shudder to think of the effort going into *Blood Money* and *Xenon II*. Can he not see the difference between a two colour sprite and a 16 colour sprite that moves across a dazzling background, with music that makes some of the house groups look at their feet?

The £24.95 price tag may not be totally justified. But who can blame software companies: they must have seen it coming with the piracy on the 8-bits although that was not as blatant and arrogant. I cannot believe that these guys can really justify what they are doing in their own minds. To rip off software is a selfish and childish occupation. I would like there to be games industry for me to work for when I finish my degree.

Nigel Hughes
St Albans, Herts

Lost his Keys

Once upon a time (May 1990), I bought an Amiga; after waiting 2 years to buy one I finally bought the Flight of Fantasy pack. I was ecstatic, overjoyed, rapturous – well, pleased anyway.

Along with the computer came some games, and some games I bought myself. But when I played these games, what happened? I found that most of these games were either joystick or mouse controlled. NO KEYBOARD CONTROLS. I was horrified; with the exception of two games (*Phobia* and *Super Hang On*) there were no keyboard controls. Now this may seem petty, but after owning a Spectrum 128 for 2 years I was used to playing with a keyboard and I found it easier to use, but why not on my Amiga!!!???

Do you have any ideas? It can't be lack of memory or such like. So, please if any programmers are reading this, take note; after all, you wouldn't want me to sell my Amiga and buy a Spectrum.

P D Mellerick
Leicester

Keep checking our game reviews – if there's a keyboard option we say so in the heading.

I'll Modulate your Bender!

What's Jon Bates on about (Issue 11 – Music). He reckons *Sonix* does not support MIDI. Just tell him that *Sonix* V2.0 can handle 16 MIDI instruments playing 32 sounds each on any one of *Sonix's* eight tracks. That's 4,096 MIDI possibilities. So there.

And if you've got no idea about music then check out your local library, get a book of scores, key in a tune and hey presto! – you can play. It's not all that difficult to create your own house music either. Check out the examples from your PD supplier.

So tell Jon to get his facts right or I'll come down there and modulate his bender.

If you've got *Sonix* and have problems with loading data disks, and if you've tried to access the 'read me' file and found it won't load, just put it through Ed to read or your favorite text editor. Because the manual doesn't tell you how to do it.

K Scales
Darwen, Lancs

High Rise

Re all the letters in the June issue regarding high price games. They all seem to refer to the software houses making the money. I recently went into a shop to buy a game, while the guy was out the back getting it my eyes happened to glance across one of his trade invoices. *Xenon II* cost him £6.95 maybe plus VAT, I couldn't see the bottom of the bill.

He and most other shops are selling it for between £15 and £18. Special Reserve are the only ones I have seen selling at £6.99. So maybe the shops ought to stop ripping us gamers off. I also agree with Tom Haslam's letter (June issue) about shops pirating copies. This doesn't just apply to employees doing it, I've seen the boss in my local shop using copies of games. He doesn't even employ any staff.

J Ankin
Pennyland, Bucks

Pay the Money...

Like many other readers, I despise those who have no intention of ever buying an original disk, but software companies are not completely innocent.

Personally I have no objection at all to paying for quality software such as *Kick-Off*, which completely deserve their price tags. However I think it is disgusting that us law abiding customers are continually abused by lazy and greedy companies. They must realise that unoriginal game formats with jazzy graphics and sound does not qualify as "quality software".

Mark Jarvis
Broadstone, Dorset

...or Don't!

I read with interest all these people who are complaining about the cost of games software.

There is an easy solution – don't buy it!

I've found that ever since I stopped buying all these overpriced, overhyped and overly BORING pieces of software, I am now having more fun that ever before.

Sure, applications software and the like costs more, but at least you know you really want it before you buy, and chances are that you will be still using it in a couple of months' time. Unlike games where the lasting interest spans about a week if you're lucky. So, until the software houses come up with something worth spending my hard earned money on, then they can count me out.

And if there are others out there like me, two games I can recommend are *Stunt Car Racer* and *Player Manager*.

Tim Lloyd
Hong Kong

Disk Doctor

Here is a neat tip for getting rid of any virus on any file or disk. Get the affected item and wrap it up in something warm, a scarf or bobble hat would be fine, and tell it to go to bed. Give it lots of hot drinks and check its temperature often. If needed use certain drugs, but seek medical advice from your doctor first. After several days using this treatment the affected items should be fit enough to play for Chelsea in the next FA Cup.

John Ward
Blackpool, Lancs

Computing in the Dark

In response to a question raised by Sam Cadby in Issue 11 of *Amiga Format* I decided to work out how much electricity my Amiga used on average, per hour.

The search for the answer to this took me to the underside of my Amiga power supply. Here I found moulded into the plastic, "Input 240V~50Hz 60W". So from this I deduced an Amiga uses 60 watts of electricity an hour.

However the cost of your monitor or TV also has to be taken into account, as not many people run their Amigas without a TV or monitor, you know! My 14 inch colour TV has a rating of 54 watts, making my total power consumption 114 watts per hour. At this rating I can run my Amiga and TV for 8 hours, 46 minutes and 19 seconds on one unit of Scottish Power's electricity.

This costs less than running two 60 watt light bulbs for the same amount of time! What would you rather have? Two light bulbs or an Amiga and monitor? I know what I'd prefer!

Gavin Dickson
Melrose, Scotland

On the Demo

Why don't all software companies sell a demo of their product for £2 which can be redeemed against a future purchase of the product. My argument for this is as follows.

i) The complete program has already been written.
ii) A demo can sell the product better than mere words can.
iii) It would ensure more people saw the program than would otherwise buy/see it.
iv) Perhaps a deal with magazines could be reached so a disk would reach more people quickly (cheap advertising and distribution).

James Abram
Albrighton, West Midlands

Our Reviewer, a Dipswitch?

I would like to put the record straight about an article written in Issue 11 of *Amiga Format*, the article being the write-up on the Citizen 120-D.

Whoever did the article said one of the printer's bad points is having to remove the interface cartridge to alter the DIP switch settings. I'm sure this was a deliberate mistake as you don't have to do this. If you look in the top of the unit, directly under the printer ribbon there is a little sliding door. If you slide this door to the right, guess what's underneath it... Right first time! The dip switches!

G S Sumner
Huntingdon, Cambs

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PLEASE LIST ALL THE SOFTWARE USED IN THE CREATION OF YOUR ENTRY:

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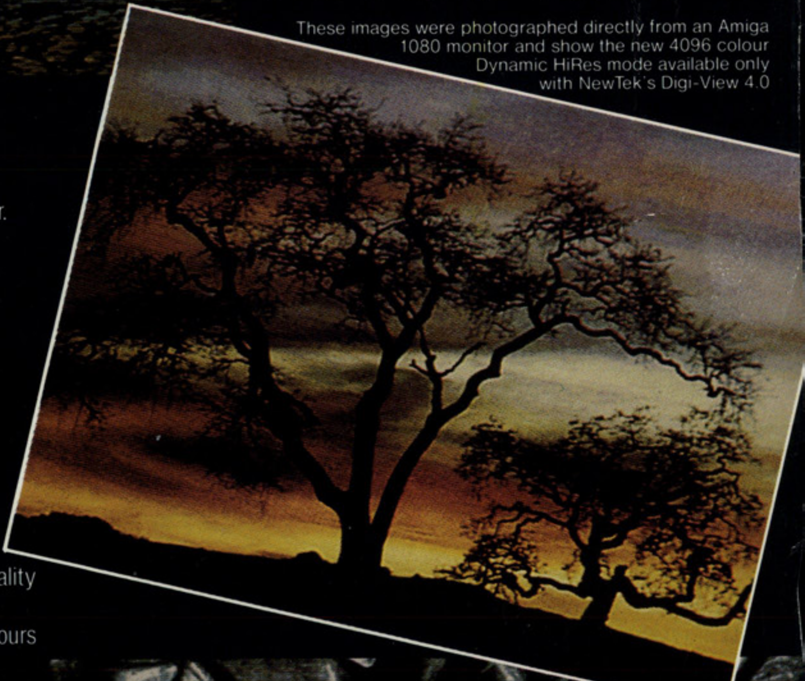
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